



晶復科技股份有限公司

A Test Lab Techno Corp.

低功率射頻電機試驗報告

報告編號 2009DR28

版本(Rev.) 01

產品名稱 USB藍牙音箱

申請廠商 Plantronics, Inc.

廠 牌 plantronics

型式 (號) SY20-M USB-C

系列型式 (號) SY20 USB-C, SY20-M USB-A, SY20 USB-A

產品試驗依據之標準 低功率射頻電機技術規範(LP0002) 107 年 1 月 10 日

報告發行日期 109 年 10 月 28 日

填發本型式認可報告之試驗機構 (認可代號)

晶復科技股份有限公司
33465 桃園市八德區長安街 140-1 號
Tel : 03-2710188 / Fax : 03-2710190



財團法人全國認證基金會
認證編號 : 1330
認證有效期間 : 108.09.06 ~ 111.09.05
認可能量範圍 : 低功率射頻電機技術規範(LP0002) (頻率範圍:9 kHz to 40 GHz)

免責聲明

- 1.本測試報告所敘述之測試結果，僅對顧客所提供之測試樣品，在此測試報告所述及之測試條件下，所實施之量測有效。
- 2.本測試報告未經晶復科技股份有限公司書面同意，不得部分複製本報告內容。
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報告修訂紀錄

版本 (Rev.)	發行日期	修訂內容	修訂者
00	109 年 10 月 16 日	初版發行	趙翊如
01	109 年 10 月 28 日	更新 2.2 章節 (P.8~P.9) 更新 2.5 章節 (P.10) 更新不出貨配件照	趙翊如

低功率射頻電機測試證明書

產品名稱 : USB藍牙音箱

廠 牌 : plantronics

型 號 : SY20-M USB-C

系列型號 : SY20 USB-C, SY20-M USB-A, SY20 USB-A

申請廠商 : Plantronics, Inc.

申請者地址 : 345 Encinal Street, Santa Cruz, CA 95060, USA

製造廠商 : 東莞泰升音響科技有限公司

製造商地址 : 中國廣東省東莞市東城街道牛角坑路12號

待測物電壓 : Input: DC 5 V, 2.0 A
Output: DC 5 V, 1.0 A

試驗電壓 : 110 Vac, 60 Hz

量測規範 : 低功率射頻電機技術規範(LP0002) 107年1月10日

試驗實驗室 : 晶復科技股份有限公司(桃園市八德區長安街140-1號)

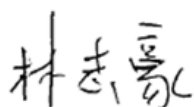
樣品接受日期 : 109 年 08 月 17 日

試驗日期 : 109 年 08 月 18 日 ~ 109 年 09 月 03 日

報告中所描述之測試結果與待測設備之架構組合，均根據實際量測情況作詳實的記錄。
由測試結果顯示，上述待測設備樣機確實已符合低功率射頻電機技術規範(LP0002)所規定的各項限制值。

特此證明！

審 核 者：



(林 志 豪)

目 錄

名 稱	頁 次
低功率射頻電機測試證明書	3
1. 一般敘述.....	5
1.1 待測設備一般敘述	5
1.2 其他相關聲明	6
2. 量測儀器及測試配置說明	7
2.1 量測設備	7
2.2 檢驗系統示意圖	8
2.3 輔助測試之週邊設備描述	9
2.4 測試軟體版本	9
2.5 測試模式	10
2.6 量測不確定度	11
2.7 試驗環境	11
3. 測試項目與結果判定總表	12
4. 測試項目表列.....	14
4.1 輸出峰值功率之量測	14
4.2 電源線傳導干擾之量測	19
4.3 場強輻射之量測	22
4.4 非必要頻帶之量測	69
4.5 頻率範圍之要求	82
4.6 發射頻寬之要求	85
4.7 頻道數之要求	91
4.8 跳頻系統之載波頻率頻道間隔之量測	94
4.9 跳頻系統之任一頻率佔用之平均時間之量測	97
4.10 功率密度之要求	102
4.11 天線規格之要求	105

1. 一般敘述

1.1 待測設備一般敘述

本敘述僅針對產品簡單說明之，其他詳細之規格請參考使用說明書。

產 品 名 稱	USB 藍牙音箱		
廠 牌	plantronics		
型 號	SY20-M USB-C		
系 列 型 號	SY20 USB-C, SY20-M USB-A, SY20 USB-A		
額 定 電 源	Input: DC 5 V, 2.0 A Output: DC 5 V, 1.0 A		
調 變 方 式	GFSK, $\pi/4$ -DQPSK, 8DPSK		
頻 率 使 用 範 圍	2402 MHz – 2480 MHz		
天 線 廠 牌	plantronics		
天 線 型 號	SY20-M USB-C		
天 線 型 態	PCB Antenna		
天 線 增 益 值	1.21 dBi		
RF 最大輸出功率	BR, GFSK:	2.64 dBm/	0.00184 W
	EDR, $\pi/4$ -DQPSK:	4.93 dBm/	0.00311 W
	EDR, 8DPSK:	5.53 dBm/	0.00357 W
	LE, GFSK:	-2.40 dBm/	0.00058 W
	2LE, GFSK:	-2.42 dBm/	0.00057 W

輸出/輸入埠說明_ SY20-M USB-C, SY20 USB-C :

輸 出 / 入 埠		數量	介面內容說明
1	USB Type-C Port (Non-Shielded, 0.7 m)	1	連接至電源供應器
2	USB Port	1	連接至手機/i-Pod/多媒體終端

輸出/輸入埠說明_ SY20-M USB-A, SY20 USB-A :

輸 出 / 入 埠		數量	介面內容說明
1	USB Port (Non-Shielded, 0.7 m)	1	連接至電源供應器
2	USB Port	1	連接至手機/i-Pod/多媒體終端

待測設備外圍說明：

電 源 線 類 別	本產品透過 USB Cable 供電
附 屬 裝 置	請參見下列附屬裝置表

附屬裝置表：

裝置名稱	廠牌	型號	備註
內建固定式電池	EVE	A0679	3.6 VDC, 3100 mAh

1.2 其他相關聲明

本測試報告屬(以下選擇一種打■)

■	申請新的型式檢驗認可的測試。
□	已取得型式檢驗認可之商品，因設計變更而重新測試 (變更內容請參考產品概述)。 登錄號碼: XXXXXXXX

系列機型、機型版別之差異說明

原機型廠牌、型號	系列機型廠牌、型號	差異敘述			
plantronics / SY20-M USB-C	plantronics / SY20 USB-C, SY20-M USB-A, SY20 USB-A	因市場銷售區隔，增加系列型號，具體差異為：			
			型號	USB端口	Teams功能
		主型號	SY20-M USB-C	Type-C	有
		系列型號一	SY20 USB-C	Type-C	無
		系列型號二	SY20-M USB-A	Type-A	有
		系列型號三	SY20 USB-A	Type-A	無
		其餘電路設計、印刷電路板等等並無變更。			
測試結果說明：SY20 USB-C, SY20-M USB-A, SY20 USB-A 與原機型 SY20-M USB-C 經工程判定其差異需驗證電源線傳導干擾及場強輻射其它不必要之訊號(1 GHz 以下)，結果為原機型 SY20-M USB-C 較 Worst。					

2. 量測儀器及測試配置說明

2.1 量測設備

For Conducted

Test Period: Aug. 18 ~ Aug. 19, 2020

測試者: 申世傑

名稱	廠牌	型號	序號	本次校驗日期	校驗年限
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071418	03/17/2020	1 year
Power Sensor	Agilent	N1921A	MY45241957	12/11/2019	1 year
Power Meter	Agilent	N1911A	MY45101619	12/11/2019	1 year
藍芽模擬基地台	R & S	CBT	100350	03/27/2019	2 years

For Conducted Emission

Test Period: Aug. 31, 2020

測試者: 呂迪曄

名稱	廠牌	型號	序號	本次校驗日期	校驗年限
測試接收機 (9 kHz~3 GHz)	R&S	ESCI	100367	05/25/2020	1 year
線性阻抗模擬網路	R&S	ENV216	101040	03/23/2020	1 year
線性阻抗模擬網路	R&S	ENV216	101041	04/06/2020	1 year

For Radiated Emissions

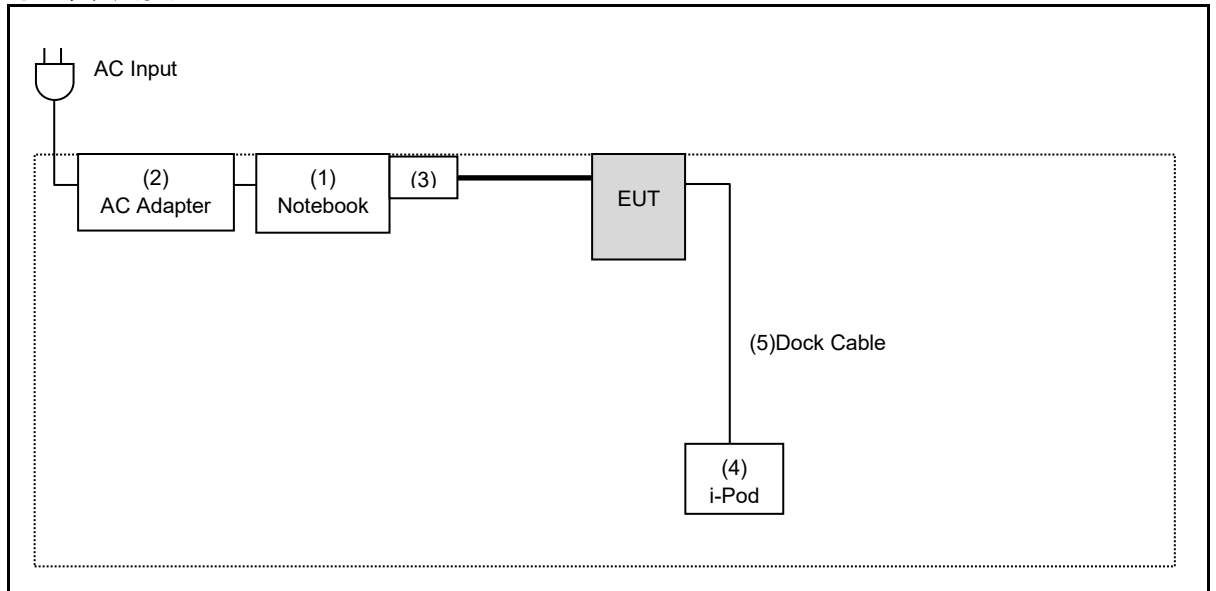
Test Period: Aug. 27 ~ Sep. 03, 2020

測試者: 葉佳原

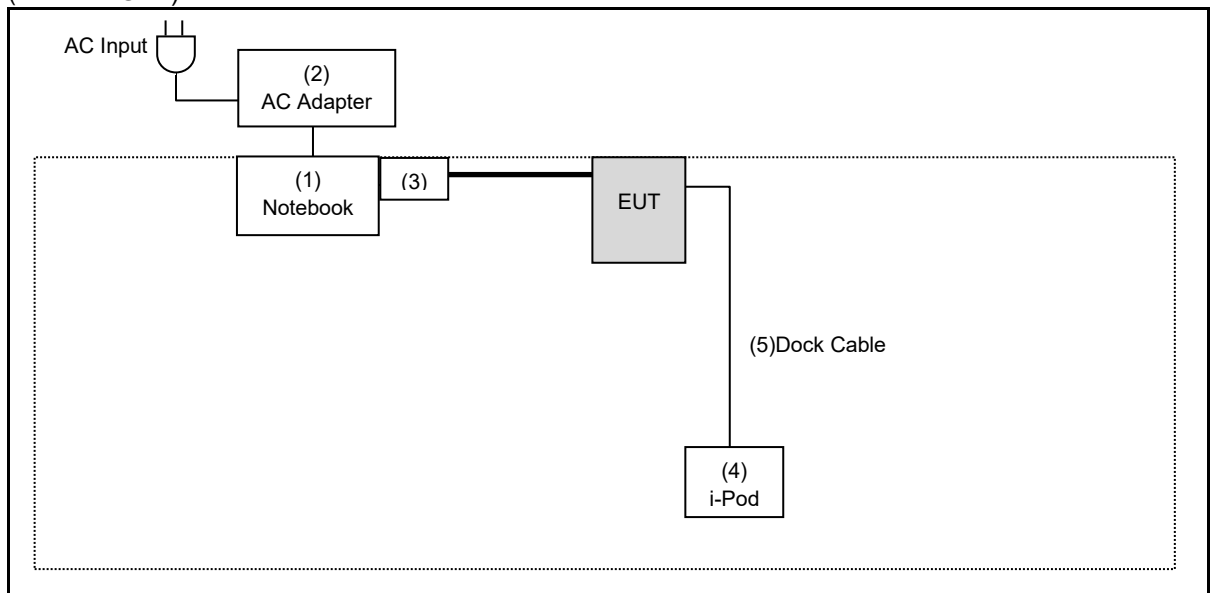
名稱	廠牌	型號	序號	本次校驗日期	校驗年限
Spectrum Analyzer	KEYSIGHT	N9030B	MY57143537	04/14/2020	1 year
Amplifier	Agilent	8449B	3008A02237	10/18/2019	1 year
Amplifier	Agilent	8447D	2944A11119	01/15/2020	1 year
天線	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	01146	07/03/2020	1 year
天線(1~18 GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	02207	06/30/2020	1 year
天線(18~40 GHz)	ETS	3116	00086467	12/13/2019	1 year
藍芽模擬基地台	R & S	CBT	100350	03/27/2019	2 years

2.2 檢驗系統示意圖

電源傳導干擾測試配置

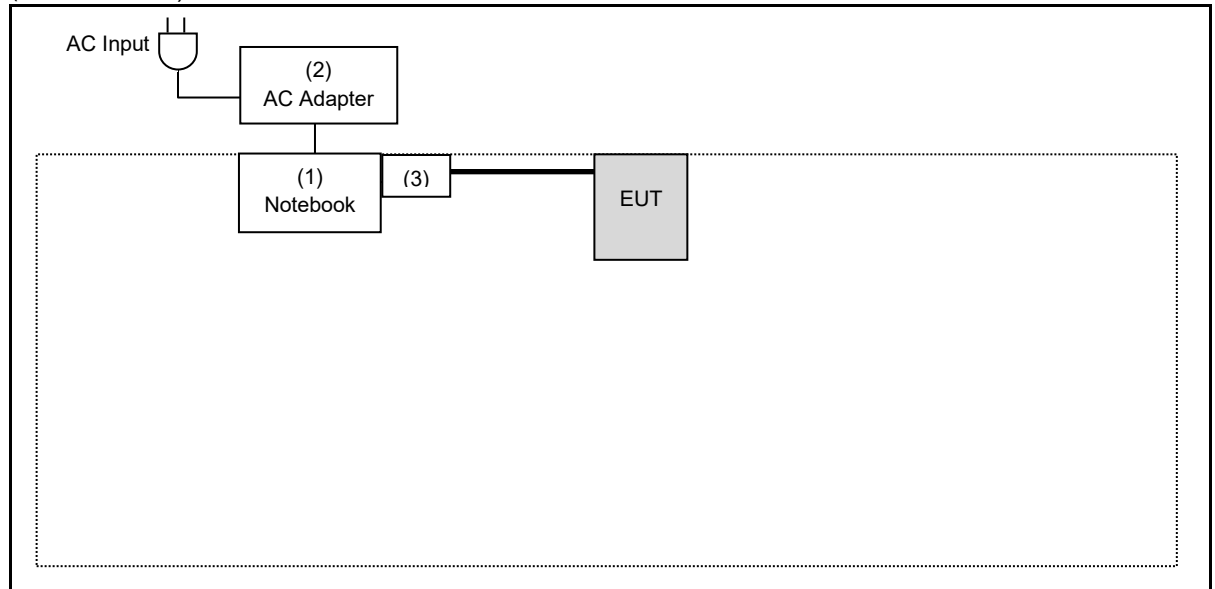


輻射干擾測試配置
(Below 1 GHz)



輻射干擾測試配置

(Above 1 GHz)



2.3 輔助測試之週邊設備描述

下列輔助設備或配件為測試中所使用，以形成一個代表性的受測系統。

週邊名稱	廠牌	型號	序號	電源線	備註
(1) Notebook	ASUS	P1448U	K7NXC10P 87329A	---	(實驗室提供)
(2) AC Adapter	ASUS	EXA1203YH	---	Non-Shielded, 0.8 m	INPUT : 100-240 VAC, 50/60 Hz, 1.5 A OUTPUT : 19 VDC , 3.42 A (實驗室提供)
(3) USB 轉 Type-C 轉接頭	CableCreation	CC0765	---	---	STD-A → Type-C (申請者提供)
(4) i-Pod	APPLE	A1199	YM734DKE VQ5	---	(實驗室提供)
(5) Dock Cable	APPLE	A1199	YM734DKE VQ5		線長 : 0.8 m (實驗室提供)
(6) AC Adapter	HUAWEI	HW-090200UH0	---	---	INPUT : 100-240 VDC, 50/60 Hz, 0.5 A OUTPUT : 5 VDC, 2 A or 9 VDC, 2 A (實驗室提供)

註：本案經申請者切結器材不提供隨貨配件，配件由實驗室(或申請者)提供併同檢驗。

2.4 測試軟體版本

Measurement Software			
No.	Description	Software	Version
1	Conducted Emission	EZ EMC	1.1.4.3
2	Radiated Emission	EZ EMC	1.1.4.4

2.5 測試模式

使用定頻模式量測

Pre-Test Mode
Mode 1: Transmit Mode
Mode 2: BR, GFSK Continuous TX Mode
Mode 3: EDR, $\pi/4$ -DQPSK Continuous TX Mode
Mode 4: EDR, 8DPSK Continuous TX Mode
Mode 5: LE, GFSK Continuous TX Mode
Mode 6: 2LE, GFSK Continuous TX Mode
Mode 7: Receiver Mode

Final-Test Mode
Mode 1: Transmit Mode
Mode 2: BR, GFSK Continuous TX Mode
Mode 4: EDR, 8DPSK Continuous TX Mode
Mode 5: LE, GFSK Continuous TX Mode
Mode 6: 2LE, GFSK Continuous TX Mode
Mode 7: Receiver Mode

Note. 電源線傳導干擾及場強輻射之量測(1G 以下)驗證 SY20-M USB-C、SY20 USB-C, SY20-M USB-A, SY20 USB-A，結果為 SY20-M USB-C 最 Worst。

測試搭配組合：

EUT Configure Mode	CE	RE<1 GHz	RE $\geq$ 1 GHz	備註	
內建固定式電池	V	V	V		
Notebook	V (Note)	V	V	測試週邊(1)	Test Mode 使用
AC Adapter	V (Note)	V	V	測試週邊(2)	Test Mode 使用
USB 轉 Type-C 轉接頭	V (Note)	V	V	測試週邊(3)	Test Mode 使用
i-Pod	V	V	---	測試週邊(4)	
Dock Cable	V	V	---	測試週邊(5)	
AC Adapter				測試週邊(6)	

Note: Normal Mode 使用

RE $\geq$ 1 GHz : Radiated Emission above 1 GHz & Bandedge Measurement

RE<1 GHz : Radiated Emission below 1 GHz

CE : Conducted Emission

V : Final mode

X : Non support

--- : No evaluation required

Blank Space : Pre-test mode

2.6 量測不確定度

下列量測不確定水準是參照量測儀器 CISPR 16-4-2 所規定之不確定度。

Test Item	Frequency Range	Uncertainty (dB)
Conducted Emission	150 kHz ~ 30 MHz	2.68
Radiated Emission	9 kHz ~ 30 MHz	2.14
	30 MHz ~ 1000 MHz	4.99
	1000 MHz ~ 18000 MHz	4.99
	18000 MHz ~ 26500 MHz	4.23
	26500 MHz ~ 40000 MHz	4.39
Conducted Output Power	0.92 dB	
RF Bandwidth	4.79 %	
Power Spectral Density	0.92 dB	

2.7 試驗環境

產品測試時之實驗室環境條件如下：

項 目	測 試 項 目	需 求	實 際
溫度 Temperature (°C)	LP0002	10 - 40	20 - 30
濕度 Humidity (%RH)		10 - 90	45 - 75

3. 測試項目與結果判定總表

本測試報告之所有項目皆依據 NCC 低功率射頻電機技術規範(LP0002)之檢驗法。

BR/EDR 測試項目

項次	測試項目	適用規範	測試結果	量測設備	結果判定
1	輸出峰值功率	低功率射頻電機技術規範 3.10.1.2(1)(B)節	請參閱4.1節	請參閱2.1節	符合
2	電源線傳導干擾	低功率射頻電機技術規範 2.3節	請參閱4.2節	請參閱2.1節	符合
3	場強輻射 (1 GHz以上)	低功率射頻電機技術規範 2.8節、2.9節、3.10.1.5節	請參閱4.3節	請參閱2.1節	符合
4	場強輻射其它不必要之訊號 (1 GHz以下)	低功率射頻電機技術規範 2.8節、2.9節、3.10.1.5節	請參閱4.3節	請參閱2.1節	符合
5	頻帶邊緣外之輻射發射	低功率射頻電機技術規範 3.10.1.5節	請參閱4.3節	請參閱2.1節	符合
6	非必要頻帶	低功率射頻電機技術規範 3.10.1.5節	請參閱4.4節	請參閱2.1節	符合
7	頻率範圍	低功率射頻電機技術規範 3.10.1.1節	請參閱4.5節	請參閱2.1節	符合
8	發射頻寬	低功率射頻電機技術規範 3.10.1.6(1)(A)節	請參閱4.6節	請參閱2.1節	符合
9	頻道數	低功率射頻電機技術規範 3.10.1.6(1)(A)(a)節	請參閱4.7節	請參閱2.1節	符合
10	跳頻系統之載波頻率頻道間隔	低功率射頻電機技術規範 3.10.1.6(1)(A)節	請參閱4.8節	請參閱2.1節	符合
11	跳頻系統之任一頻率佔用之 平均時間	低功率射頻電機技術規範 3.10.1.6(1)(A)(a)節	請參閱4.9節	請參閱2.1節	符合
12	天線規格	低功率射頻電機技術規範 3.10.1.3(3)節、3.10.1.4節	請參閱4.11節	-----	符合

LE/2LE 測試項目

項次	測試項目	適用規範	測試結果	量測設備	結果判定
1	輸出峰值功率	低功率射頻電機技術規範 3.10.1.2(1)(C)節	請參閱4.1節	請參閱2.1節	符合
2	電源線傳導干擾	低功率射頻電機技術規範 2.3節	請參閱4.2節	請參閱2.1節	符合
3	場強輻射 (1 GHz以上)	低功率射頻電機技術規範 2.8節、2.9節、3.10.1.5節	請參閱4.3節	請參閱2.1節	符合
4	場強輻射其它不必要之訊號 (1 GHz以下)	低功率射頻電機技術規範 2.8節、2.9節、3.10.1.5節	請參閱4.3節	請參閱2.1節	符合
5	頻帶邊緣外之輻射發射	低功率射頻電機技術規範 3.10.1.5節	請參閱4.3節	請參閱2.1節	符合
6	非必要頻帶	低功率射頻電機技術規範 3.10.1.5節	請參閱4.4節	請參閱2.1節	符合
7	發射頻寬	低功率射頻電機技術規範 3.10.1.6(2)(A)節	請參閱4.6節	請參閱2.1節	符合
8	功率密度	低功率射頻電機技術規範 3.10.1.6(2)(B)節	請參閱4.10節	請參閱2.1節	符合
9	天線規格	低功率射頻電機技術規範 3.10.1.3(3)節、3.10.1.4節	請參閱4.11節	-----	符合

Decision Rule

- ☒ Uncertainty is not included.
☐ Uncertainty is included.

4. 測試項目表列

4.1 輸出峰值功率之量測

合格標準:

BR/EDR

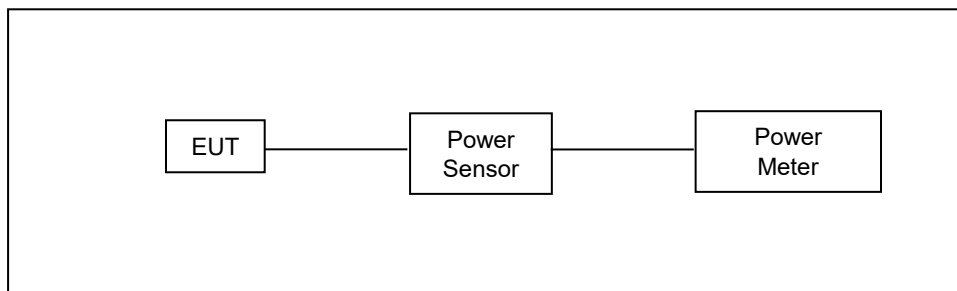
依據 NCC 低功率射頻電機技術規範(LP0002)之 3.10.1.2(1)(B)節之要求，所有操作於 2400-2483.5 兆赫且輸出功率應小於或等於 0.125 W。

LE/2LE

依據 NCC 低功率射頻電機技術規範(LP0002)之 3.10.1.2(1)(C)節之要求，操作於 2400-2483.5 兆赫(MHz)之所有數位調變技術系統：1 瓦(W)以下。

除使用附件二之峰值輸出功率量測方式外，並得使用以最大傳導輸出功率(Maximum Conducted Output Power)作為量測方式。

測試架構圖：



測試結果:

Test Mode	Frequency (MHz)	Packet Type	RF Power setting in Test Software	Test Software Version
Mode 2	2402	DH1	Default	CBT
		DH3	Default	
		DH5	Default	
	2441	DH1	Default	
		DH3	Default	
		DH5	Default	
	2480	DH1	Default	
		DH3	Default	
		DH5	Default	
Mode 3	2402	2DH1	Default	
		2DH3	Default	
		2DH5	Default	
	2441	2DH1	Default	
		2DH3	Default	
		2DH5	Default	
	2480	2DH1	Default	
		2DH3	Default	
		2DH5	Default	
Mode 4	2402	3DH1	Default	
		3DH3	Default	
		3DH5	Default	
	2441	3DH1	Default	
		3DH3	Default	
		3DH5	Default	
	2480	3DH1	Default	
		3DH3	Default	
		3DH5	Default	

Test Mode	Frequency (MHz)	RF Power setting in Test Software	Test Software Version
Mode 5	2402	Default	SuperCommTool.exe
	2440	Default	
	2480	Default	

Test Mode	Frequency (MHz)	RF Power setting in Test Software	Test Software Version
Mode 6	2402	Default	SuperCommTool.exe
	2440	Default	
	2480	Default	

操作模式 : Mode 2: BR,GFSK Continuous TX Mode						
頻道		輸出功率(Average)		輸出功率(Peak)		限制值
		dBm	W	dBm	W	W
低頻道	DH1	2.18	0.00165	2.58	0.00181	≤ 0.125
	DH3	2.21	0.00166	2.61	0.00182	≤ 0.125
	DH5	2.23	0.00167	2.64	0.00184	≤ 0.125
中頻道	DH1	1.36	0.00137	1.74	0.00149	≤ 0.125
	DH3	1.38	0.00137	1.76	0.00150	≤ 0.125
	DH5	1.40	0.00138	1.78	0.00151	≤ 0.125
高頻道	DH1	1.12	0.00129	1.52	0.00142	≤ 0.125
	DH3	1.14	0.00130	1.54	0.00143	≤ 0.125
	DH5	1.16	0.00131	1.56	0.00143	≤ 0.125

操作模式 : Mode 3: EDR, $\pi/4$ -DQPSK Continuous TX Mode						
頻道		輸出功率(Average)		輸出功率(Peak)		限制值
		dBm	W	dBm	W	W
低頻道	2DH1	2.22	0.00167	4.88	0.00308	≤ 0.125
	2DH3	2.25	0.00168	4.91	0.00310	≤ 0.125
	2DH5	2.27	0.00169	4.93	0.00311	≤ 0.125
中頻道	2DH1	1.26	0.00134	3.98	0.00250	≤ 0.125
	2DH3	1.28	0.00134	4.00	0.00251	≤ 0.125
	2DH5	1.30	0.00135	4.02	0.00252	≤ 0.125
高頻道	2DH1	1.07	0.00128	3.48	0.00223	≤ 0.125
	2DH3	1.09	0.00129	3.50	0.00224	≤ 0.125
	2DH5	1.12	0.00129	3.52	0.00225	≤ 0.125

操作模式 : Mode 4:EDR, 8DPSK Continuous TX Mode						
頻道		輸出功率(Average)		輸出功率(Peak)		限制值
		dBm	W	dBm	W	W
低頻道	3DH1	2.23	0.00167	5.48	0.00353	≤ 0.125
	3DH3	2.26	0.00168	5.51	0.00356	≤ 0.125
	3DH5	2.28	0.00169	5.53	0.00357	≤ 0.125
中頻道	3DH1	1.30	0.00135	4.50	0.00282	≤ 0.125
	3DH3	1.32	0.00136	4.52	0.00283	≤ 0.125
	3DH5	1.34	0.00136	4.54	0.00284	≤ 0.125
高頻道	3DH1	1.08	0.00128	3.91	0.00246	≤ 0.125
	3DH3	1.10	0.00129	3.93	0.00247	≤ 0.125
	3DH5	1.13	0.00130	3.96	0.00249	≤ 0.125

操作模式 : Mode 5: LE, GFSK Continuous TX Mode					
頻道	輸出功率(Average)		輸出功率(Peak)		限制值
	dBm	W	dBm	W	W
低頻道	-2.70	0.00054	-2.40	0.00058	≤ 1
中頻道	-3.51	0.00045	-3.22	0.00048	≤ 1
高頻道	-3.47	0.00045	-3.09	0.00049	≤ 1

操作模式 : Mode 6: 2LE, GFSK Continuous TX Mode					
頻道	輸出功率(Average)		輸出功率(Peak)		限制值
	dBm	W	dBm	W	W
低頻道	-2.71	0.00054	-2.42	0.00057	≤ 1
中頻道	-3.53	0.00044	-3.24	0.00047	≤ 1
高頻道	-3.48	0.00045	-3.10	0.00049	≤ 1

4.2 電源線傳導干擾之量測

合格標準：

依據 NCC 低功率射頻電機技術規範(LP0002)之 2.3 節，以市電為電源之低功率射頻電機，其傳導回電源線上頻率自 150 kHz 至 30 MHz 之射頻電壓 (在電源端子每一電源線對接地點) 不得超過下表所列之限值。測量時應經過 50 Ω /50 μ H 之電源線阻抗模擬網路 (LISN)。頻率重疊處，以較低限值為準。

Frequency (MHz)	傳導限制值 (dBuV)	
	準峰值 (Quasi – peak)	平均值 (Average)
0.15 – 0.5	66 - 56 (註)	56 - 46 (註)
0.5 – 5	56	46
5 - 30	60	50

註：隨頻率之對數遞減。

測試方法：

測試場地為標準傳導測試場地。將待測物置於 0.8 米高的非金屬桌面，使其在工作狀態，待測物電源線接至電源線阻抗穩定網路上，從測試接收機記錄頻率由 0.15 MHz 至 30 MHz 之間之電源線傳導放射強度。

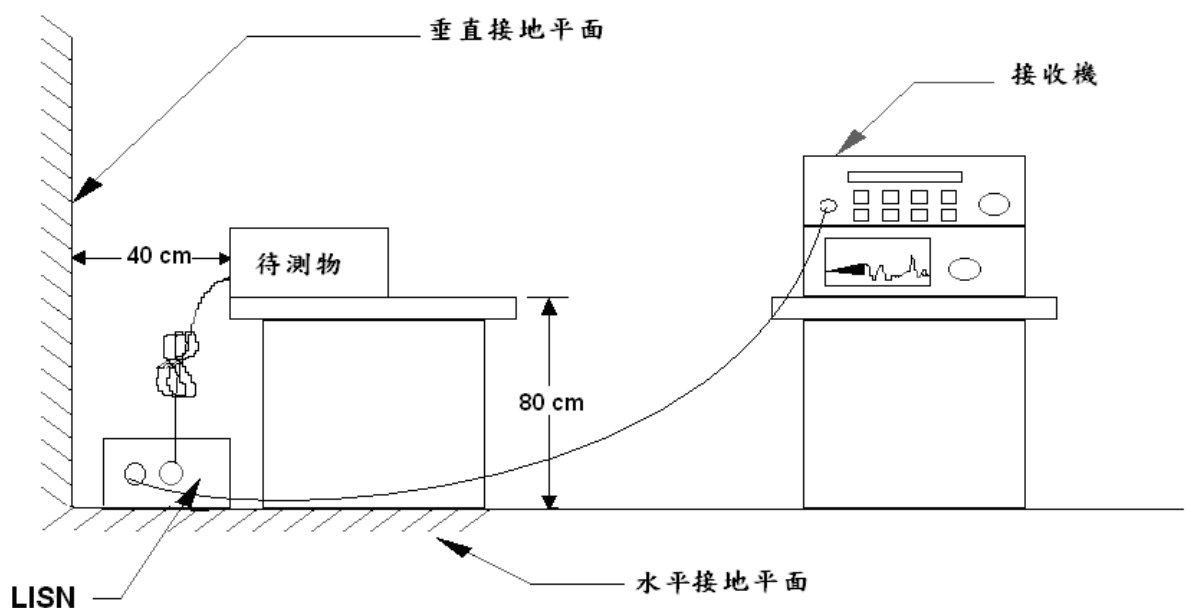
干擾值之計算

電源傳導干擾電壓之計算公式如下

結果值 = 儀器讀值(QP/AV) + 校正因子

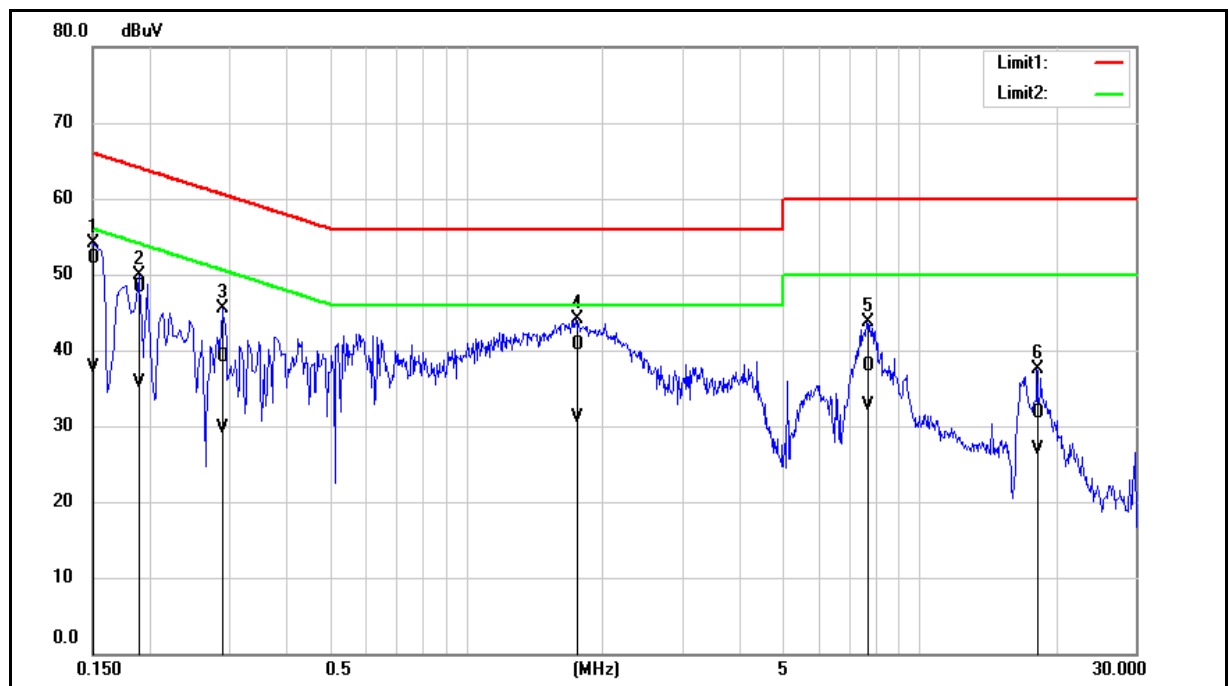
其中校正因子為：饋線損失 + 電源阻抗模擬網路損失

測試架構圖：



測試結果:

Standard:	LP0002	Line:	L1
Test item:	Conducted Emission	Power:	AC 110 V/60 Hz
Mode:	Mode 1		
Description:			

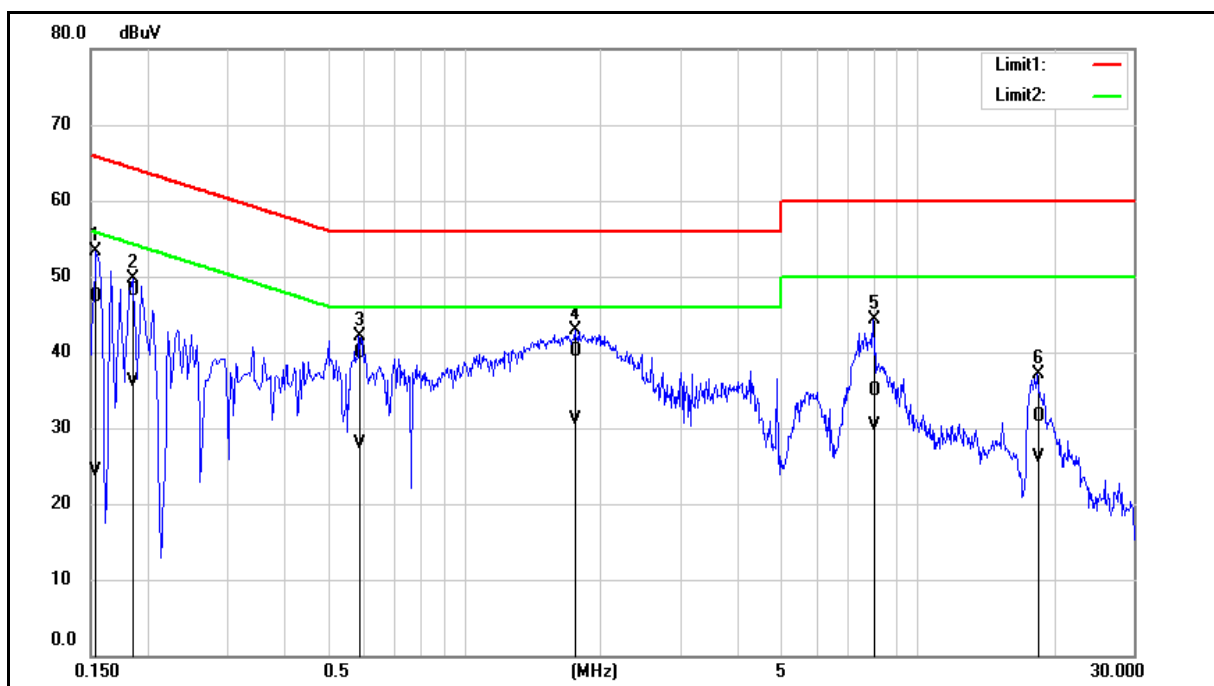


No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1500	42.38	28.09	9.70	52.08	37.79	66.00	56.00	-13.92	-18.21	Pass
2	0.1900	38.58	25.93	9.70	48.28	35.63	64.04	54.04	-15.76	-18.41	Pass
3	0.2900	29.34	19.96	9.71	39.05	29.67	60.52	50.52	-21.47	-20.85	Pass
4	1.7500	30.91	21.32	9.75	40.66	31.07	56.00	46.00	-15.34	-14.93	Pass
5	7.6820	28.11	22.84	9.85	37.96	32.69	60.00	50.00	-22.04	-17.31	Pass
6	18.1540	21.77	16.80	10.01	31.78	26.81	60.00	50.00	-28.22	-23.19	Pass

註：1. 干擾值(dBuV) = 校正係數(dB) + 讀值(dBuV)。

2. 校正係數(dB) = 量測信號線損失(dB) + 電源阻抗模擬網路係數(dB)。

Standard:	LP0002	Line:	N
Test item:	Conducted Emission	Power:	AC 110 V/60 Hz
Mode:	Mode 1		
Description:			



No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1540	37.59	14.64	9.69	47.28	24.33	65.78	55.78	-18.50	-31.45	Pass
2	0.1860	38.36	26.41	9.69	48.05	36.10	64.21	54.21	-16.16	-18.11	Pass
3	0.5860	30.11	18.25	9.70	39.81	27.95	56.00	46.00	-16.19	-18.05	Pass
4	1.7620	30.34	21.44	9.74	40.08	31.18	56.00	46.00	-15.92	-14.82	Pass
5	7.9940	25.10	20.40	9.85	34.95	30.25	60.00	50.00	-25.05	-19.75	Pass
6	18.3580	21.39	16.10	10.03	31.42	26.13	60.00	50.00	-28.58	-23.87	Pass

註：1. 干擾值(dBuV) = 校正係數(dB) + 讀值(dBuV)。

2. 校正係數(dB) = 量測信號線損失(dB) + 電源阻抗模擬網路係數(dB)。

4.3 場強輻射之量測

合格標準：

依據 NCC 低功率射頻電機技術規範(LP0002)之使用頻帶範圍外之任意 100 千赫 (kHz)內，發射機所產生的射頻功率相較於使用頻帶範圍中包含最高所需功率之 100 千赫(kHz)內的射頻功率，至少須衰減 20 dB，以射頻傳導或輻射方式測量。如發射機以依據 NCC 低功率射頻電機技術規範(LP0002)之 3.10.1.5(2)之峰值傳導輸出功率量測方式者，至少須衰減 30 dB。此外，落於第 2.7 節禁用頻段之輻射發射，應符合第 2.8 節之規定。

依據 NCC 低功率射頻電機技術規範第 2.7 節之規定，禁用頻段如下：

頻率(MHz)	頻率(MHz)	頻率(MHz)	頻率(MHz)
0.090~0.110	108.00~138.00	1660.0~1785.0	8025.0~8500.0
0.490~0.510	149.90~150.05	1805.0~1888.0	9000.0~9200.0
2.172~2.198	156.70~156.90	1885.0~1900.0	9300.0~9500.0
3.013~3.033	162.01~167.17	1905.0~1985.0	10600~12700
4.115~4.198	167.72~173.20	2010.0~2025.0	13250~13400
5.670~5.690	240.00~285.00	2110.0~2170.0	14470~14500
6.200~6.300	322.00~335.40	2200.0~2300.0	15350~16200
8.230~8.400	399.90~410.00	2310.0~2390.0	17700~21400
12.265~12.600	485.00~510.00	2483.5~2900.0	22010~23120
13.340~13.430	608.00~614.00	3260.0~3267.0	23600~24000
14.965~15.020	703.00~748.00	3332.0~3339.0	31200~31800
16.700~16.755	758.00~803.00	3345.8~3358.0	36430~36500
19.965~20.020	825.00~915.00	3500.0~4400.0	38600 以上
25.500~25.700	930.00~1240.0	4500.0~5250.0	
37.475~38.275	1300.0~1427.0	5350.0~5460.0	
73.500~75.400	1435.0~1626.5	7250.0~7750.0	

依據 NCC 低功率射頻電機技術規範第 2.8 節之規定，除本規範各章節另有放寬規定者外，其電場強度不得超過下表之限值，且其不必要之發射皆不得大於主波發射強度。各頻段重疊處，以較嚴格之限制值為準。

頻 率 (MHz)	電場強度(μV/m)	測距(m)
0.009 - 0.490(含)	2,400/頻率(千赫)	300
0.490 (不含) – 1.705 (含)	24,000/頻率(千赫)	30
1.705(不含) – 30 (不含)	30	30
30 (含) – 88 (含)	100	3
88 (不含)- 216 (含)	150	3
216 (不含)- 960 (含)	200	3
960 (不含)以上	500	3

測試方法：

測試場地為開放測試場，將待測物置於 0.8 米高的非金屬桌面，使其在工作狀態，接收天線置於 3 米外相同的高度。待測物分別要垂直或水平放置，而且桌面要 360 度旋轉，另外接收天線也要從 1.0 米至 4.0 米升降變化，以找出最大的輻射電場強度，接收天線置於水平、垂直極向各執行測試一次。

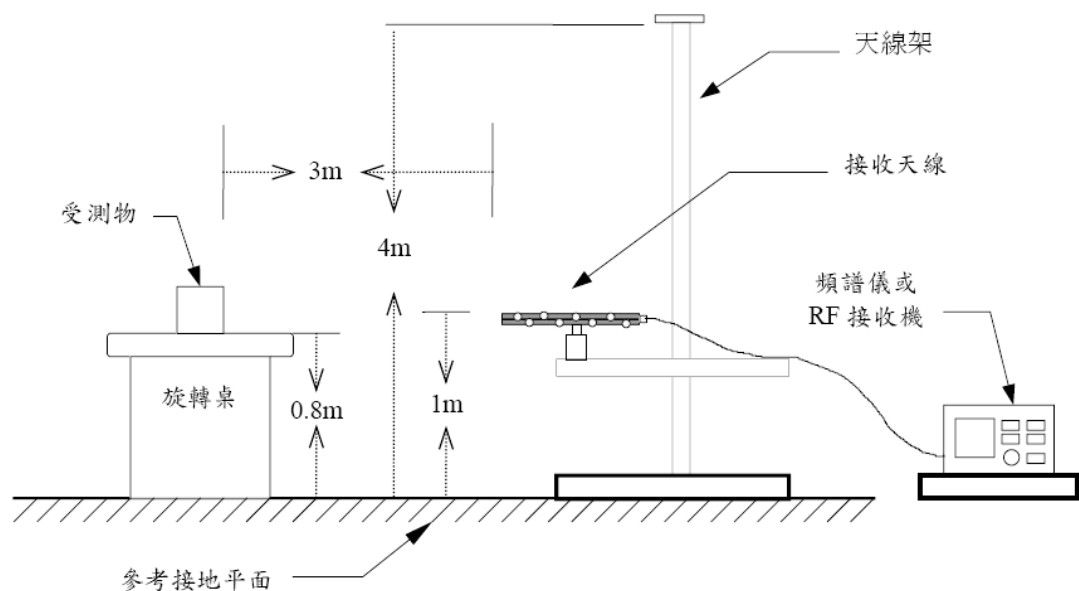
場強度之計算

場強之計算公式為：結果值 = 讀值 + 校正因子

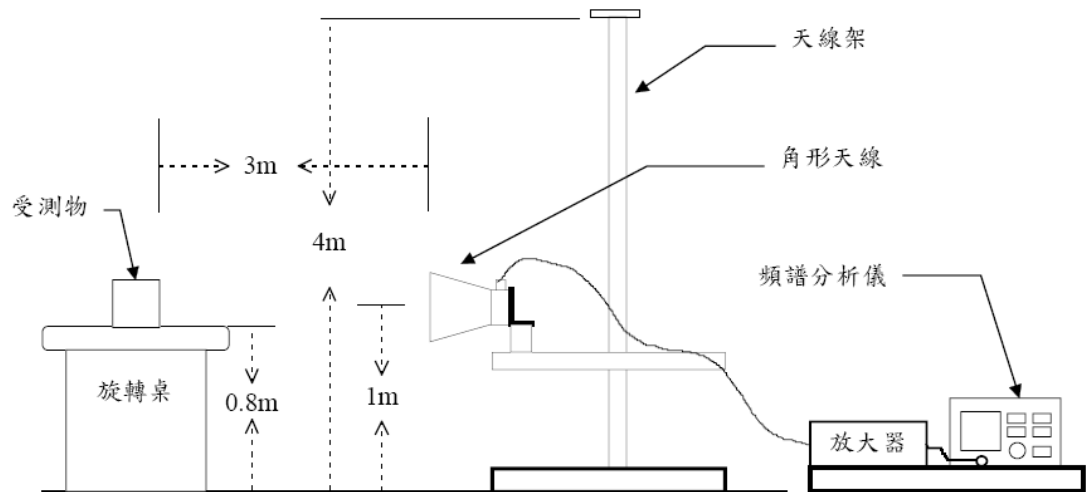
其中校正因子為：天線因子 + 饋線損失 + 濾波器損失（若有使用） - 放大器增益（若有使用）

測試架構圖：

量測頻率低於 1 GHz 以下之測試配置

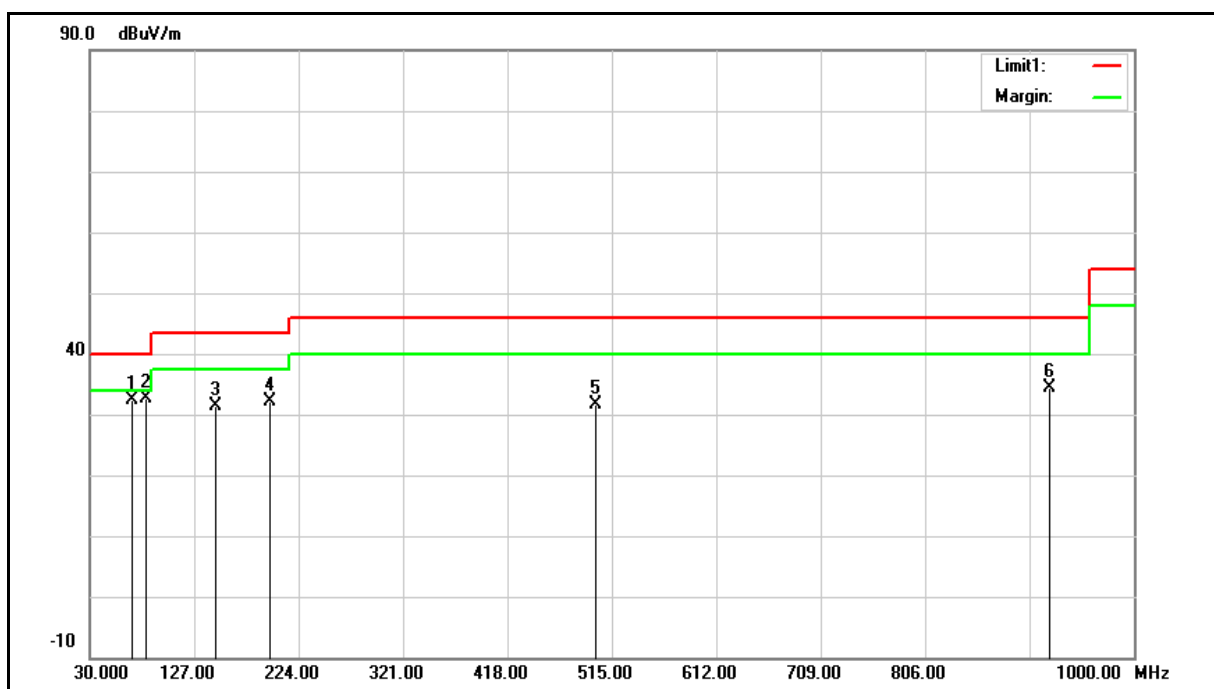


量測頻率高於 1 GHz 以上之測試配置



其它不必要之訊號 (1 GHz 以下)

Standard:	LP0002	Test Distance:	3 m
Test item:	Radiated Emission		
Frequency:	2480 MHz		
Mode:	Mode 4		
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	69.7700	43.23	-10.78	32.45	40.00	-7.55	QP
2	82.3800	45.73	-13.09	32.64	40.00	-7.36	QP
3	147.3700	39.21	-7.79	31.42	43.50	-12.08	QP
4	197.8100	42.23	-10.01	32.22	43.50	-11.28	QP
5	500.4500	35.42	-3.70	31.72	46.00	-14.28	QP
6	921.4300	31.07	3.29	34.36	46.00	-11.64	QP

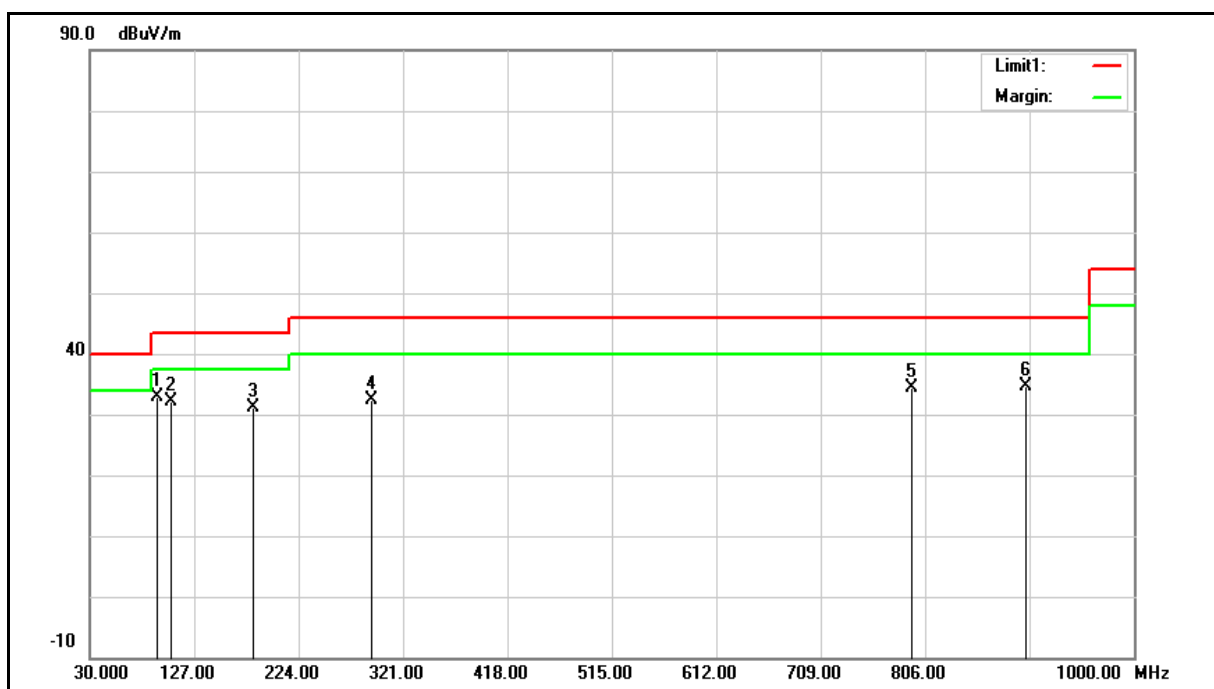
Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

Example: 32.45 = -10.78 + 43.23

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Radiated Emission		
Frequency:	2480 MHz		
Mode:	Mode 4		
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	93.0500	46.87	-13.89	32.98	43.50	-10.52	QP
2	105.6600	43.98	-11.88	32.10	43.50	-11.40	QP
3	181.3200	40.23	-9.20	31.03	43.50	-12.47	QP
4	291.9000	39.25	-6.78	32.47	46.00	-13.53	QP
5	793.3900	32.97	1.43	34.40	46.00	-11.60	QP
6	900.0900	31.73	2.97	34.70	46.00	-11.30	QP

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

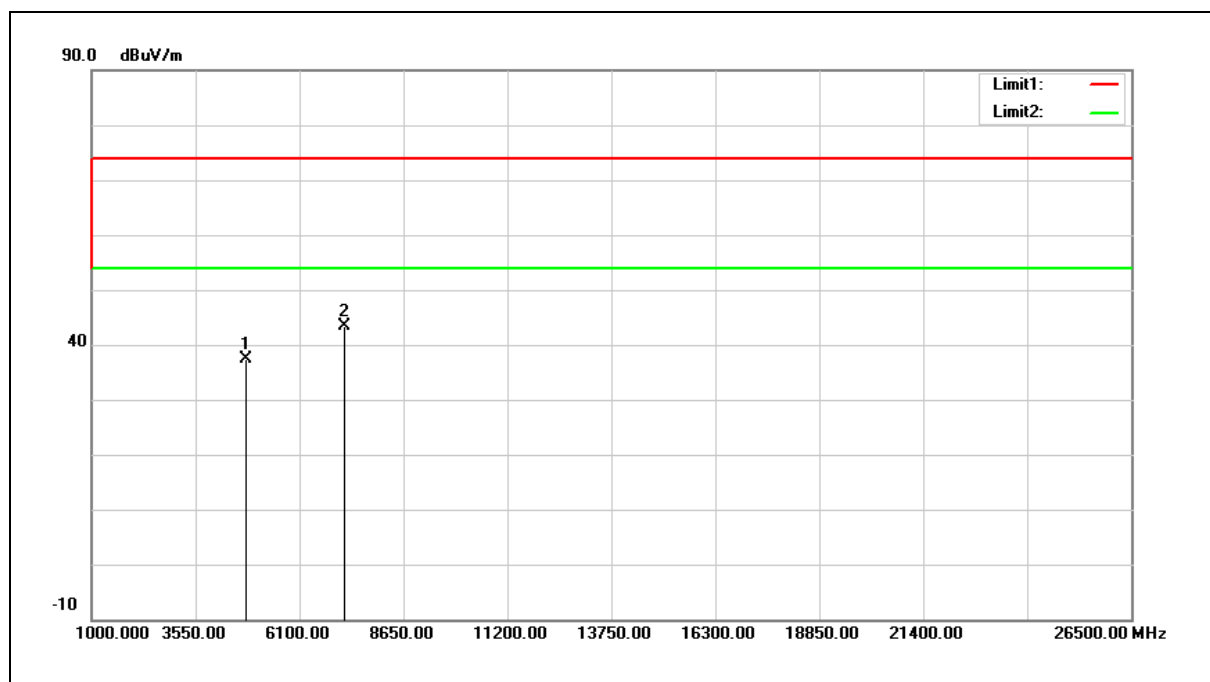
Example: $32.98 = -13.89 + 46.87$.

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

場強輻射量測 (1 GHz 以上)

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2402 MHz		
Mode:	Mode 2		
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	34.48	2.80	37.28	74.00	-36.72	peak
2	7206.000	34.66	8.82	43.48	74.00	-30.52	peak

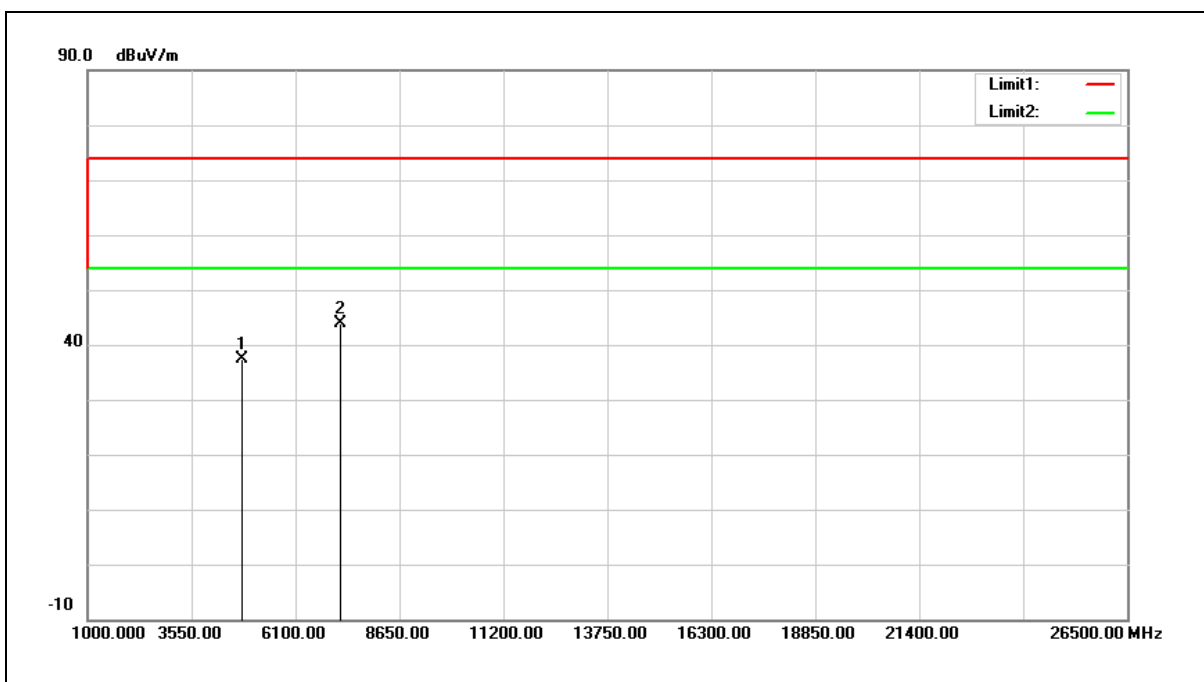
Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

Example: $37.28 = 2.80 + 34.48$

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2402 MHz		
Mode:	Mode 2		
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	34.53	2.80	37.33	74.00	-36.67	peak
2	7206.000	35.07	8.82	43.89	74.00	-30.11	peak

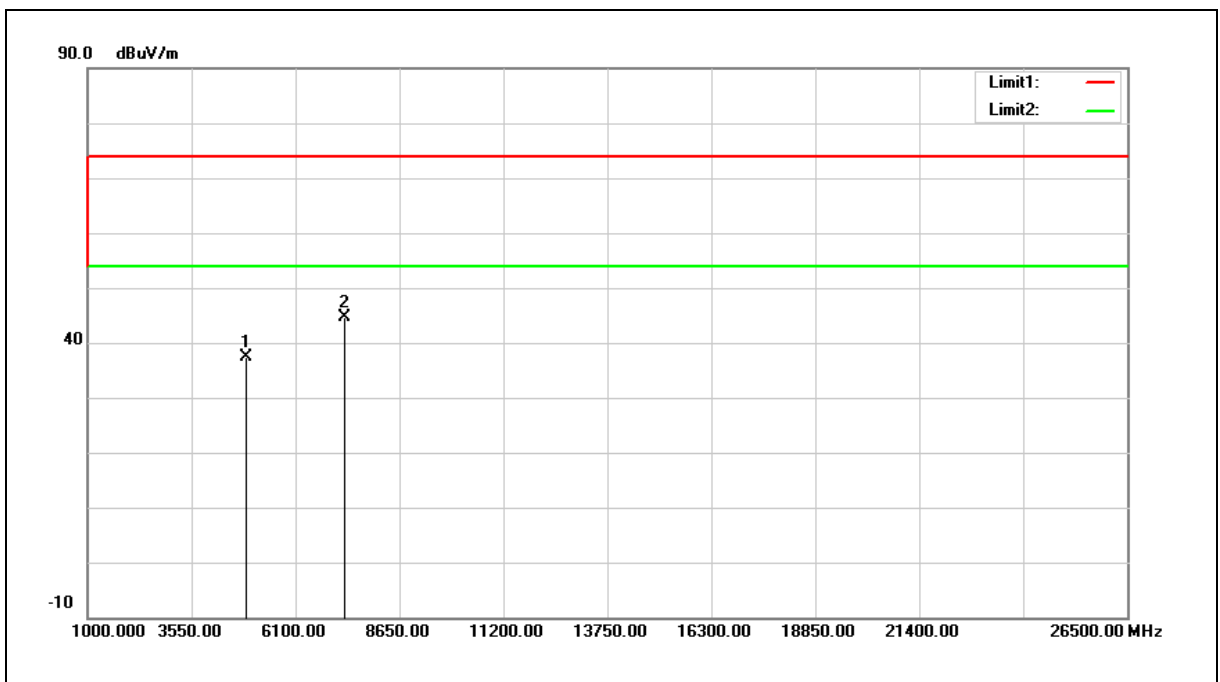
Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

Example: $37.33 = 2.80 + 34.53$

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2441 MHz		
Mode:	Mode 2		
Ant.Polar.:	Horizontal		



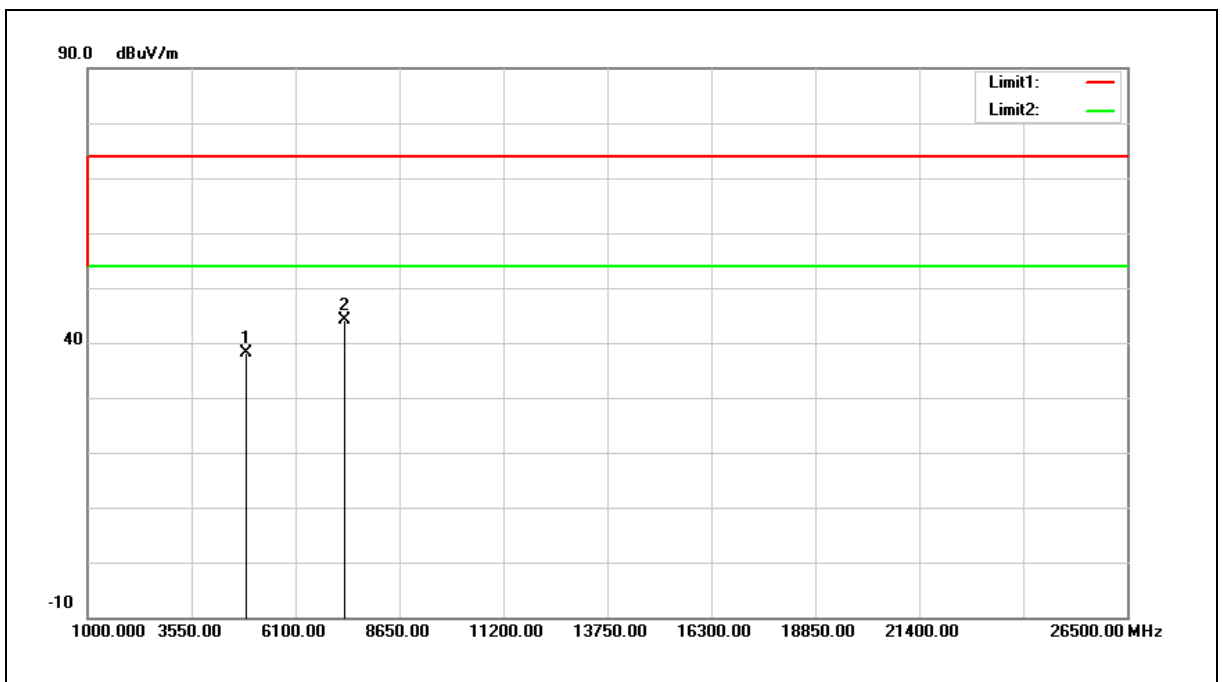
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4882.000	34.48	2.98	37.46	74.00	-36.54	peak
2	7323.000	35.33	9.18	44.51	74.00	-29.49	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2441 MHz		
Mode:	Mode 2		
Ant.Polar.:	Vertical		



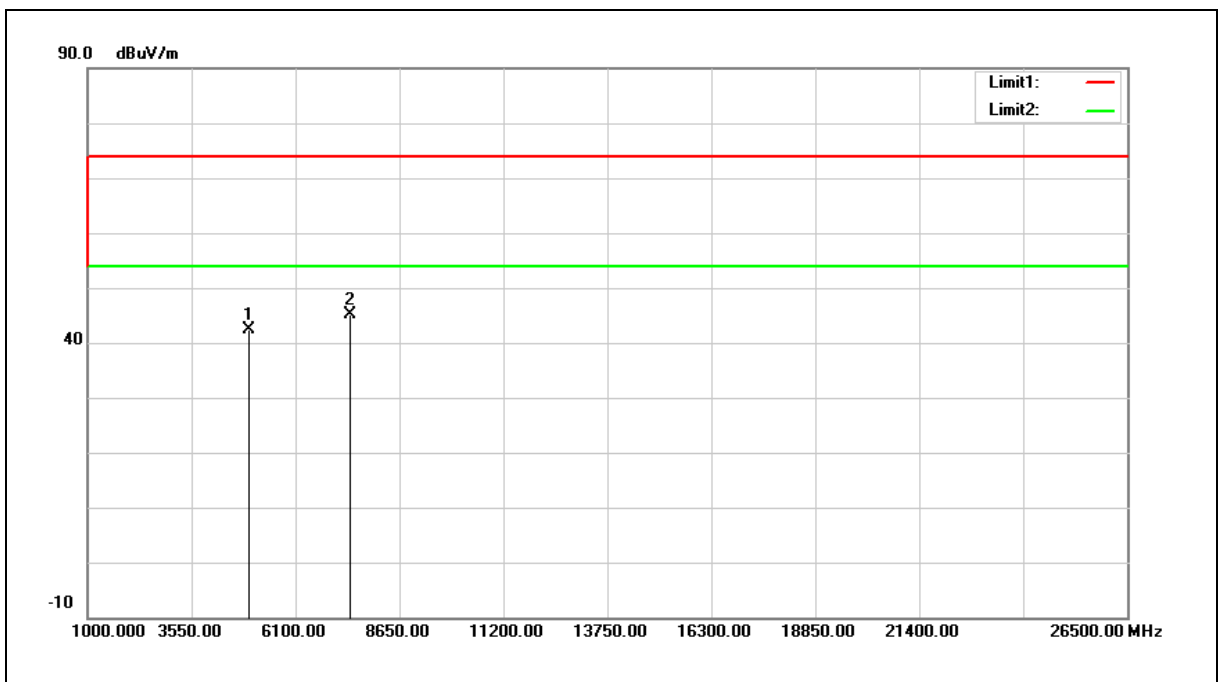
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4882.000	35.11	2.98	38.09	74.00	-35.91	peak
2	7323.000	34.98	9.18	44.16	74.00	-29.84	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2480 MHz		
Mode:	Mode 2		
Ant.Polar.:	Horizontal		



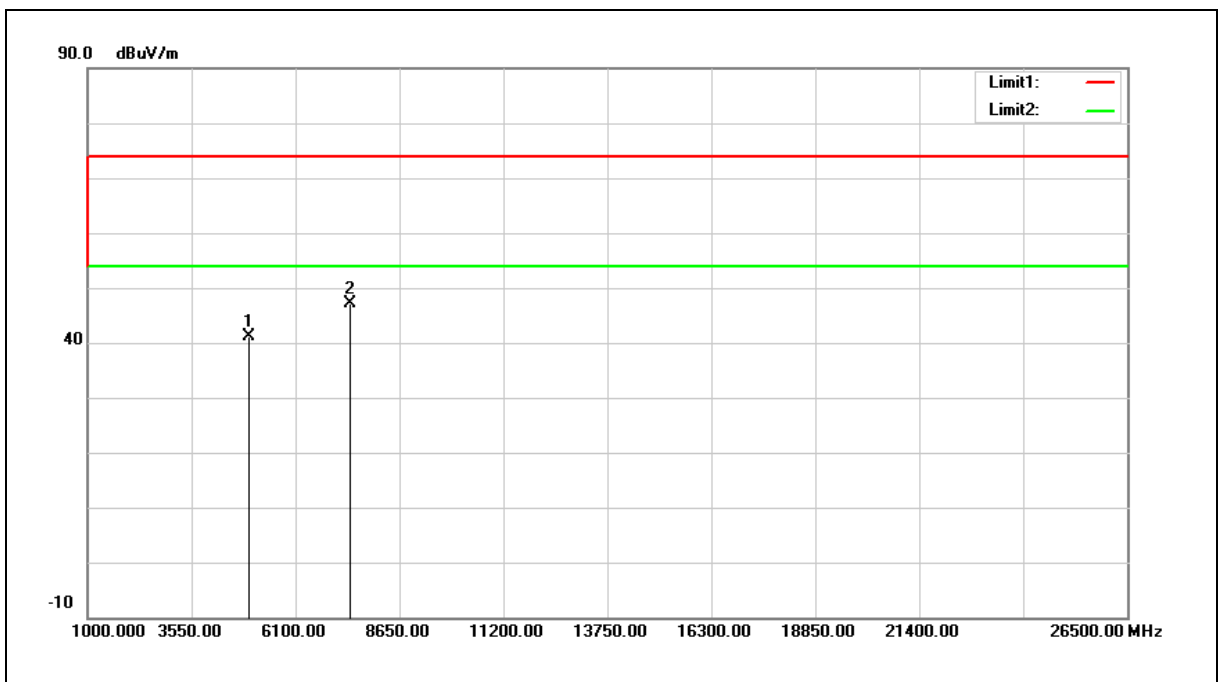
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	39.31	3.17	42.48	74.00	-31.52	peak
2	7440.000	35.65	9.55	45.20	74.00	-28.80	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2480 MHz		
Mode:	Mode 2		
Ant.Polar.:	Vertical		



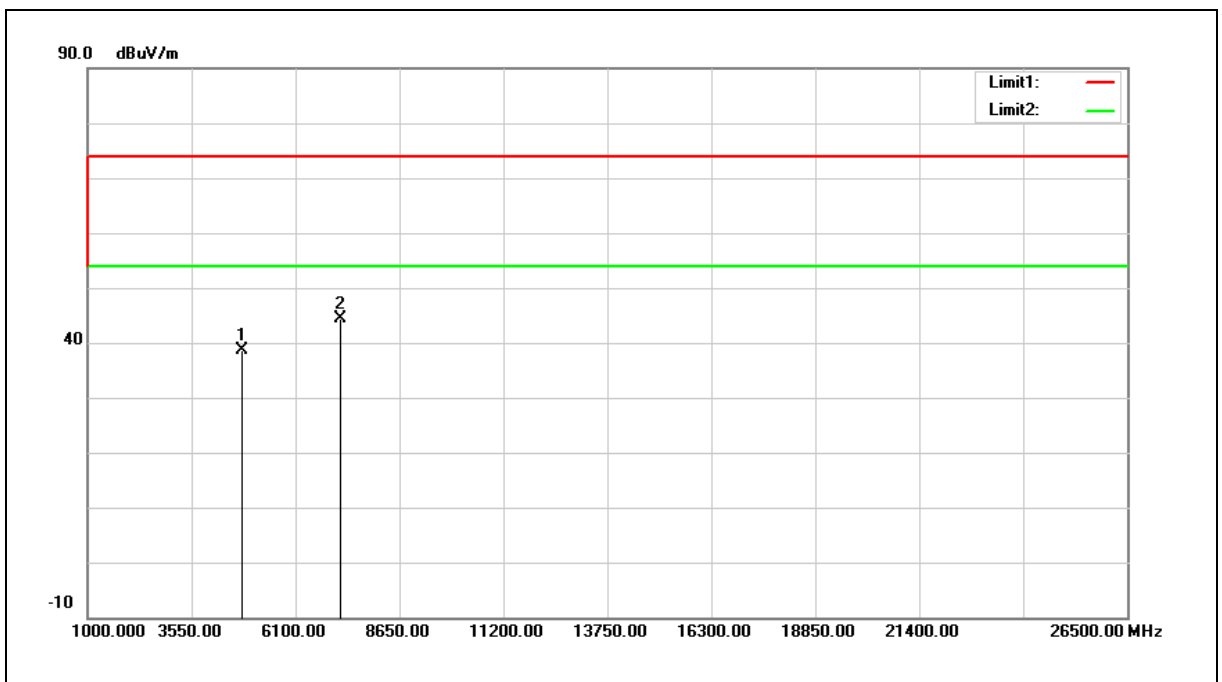
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	37.98	3.17	41.15	74.00	-32.85	peak
2	7440.000	37.61	9.55	47.16	74.00	-26.84	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2402 MHz		
Mode:	Mode 4		
Ant.Polar.:	Horizontal		



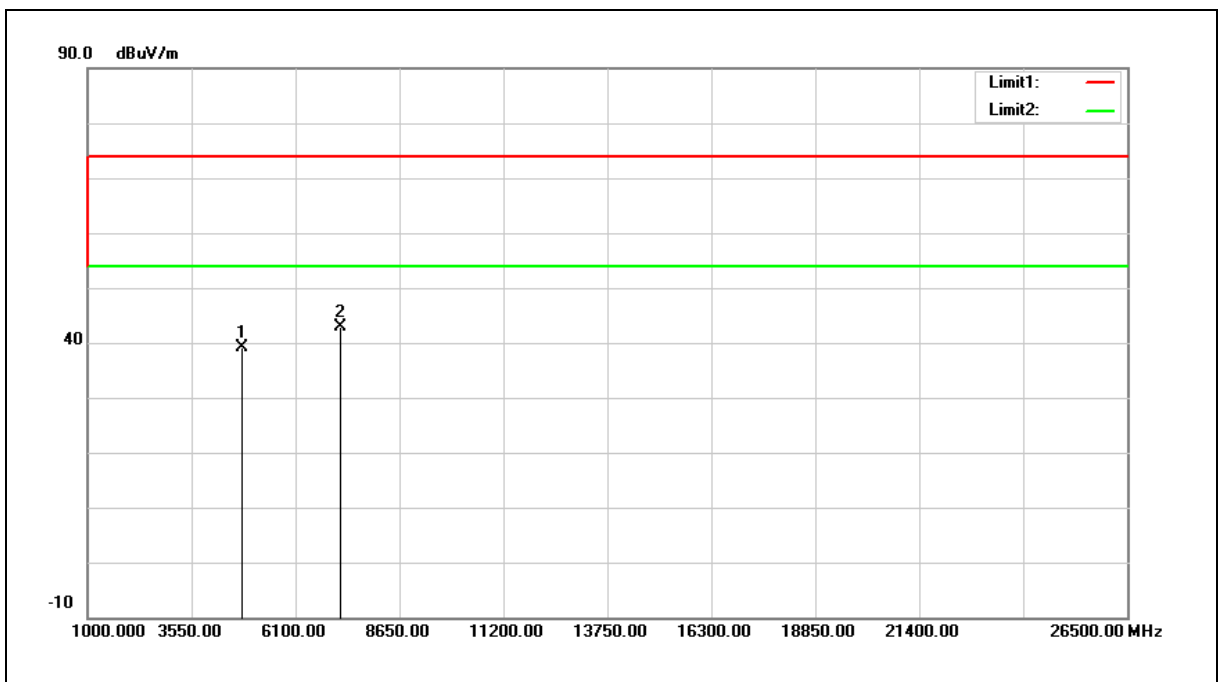
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	35.89	2.80	38.69	74.00	-35.31	peak
2	7206.000	35.60	8.82	44.42	74.00	-29.58	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2402 MHz		
Mode:	Mode 4		
Ant.Polar.:	Vertical		



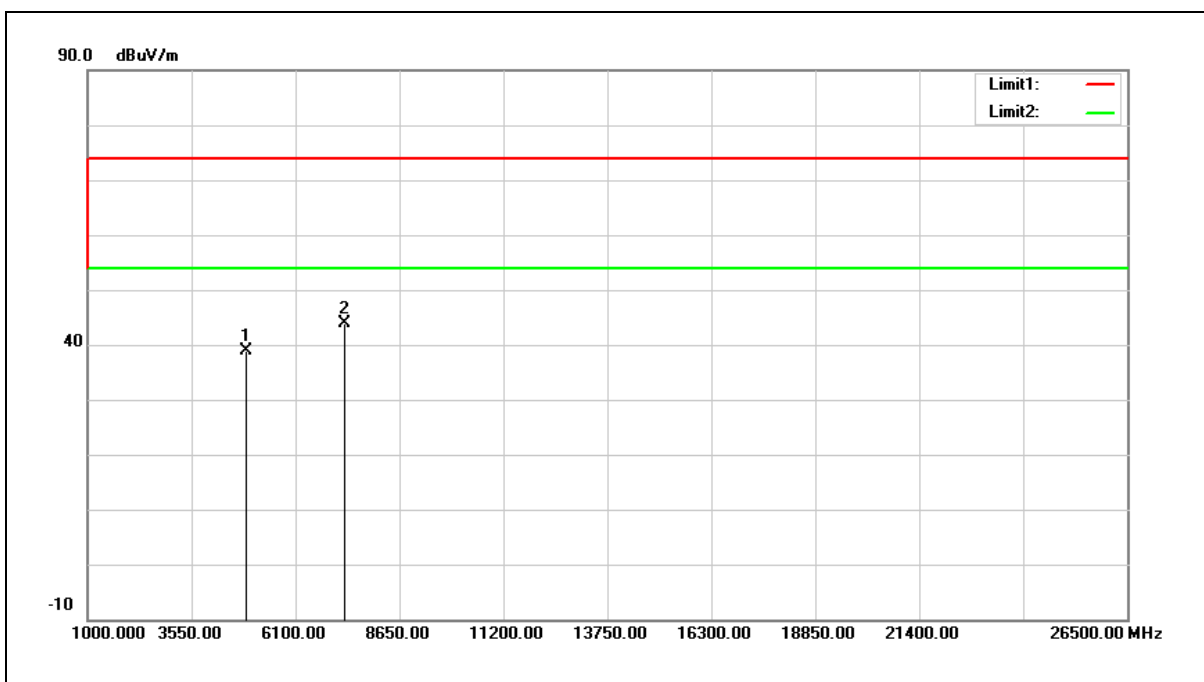
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	36.34	2.80	39.14	74.00	-34.86	peak
2	7206.000	34.06	8.82	42.88	74.00	-31.12	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2441 MHz		
Mode:	Mode 4		
Ant.Polar.:	Horizontal		



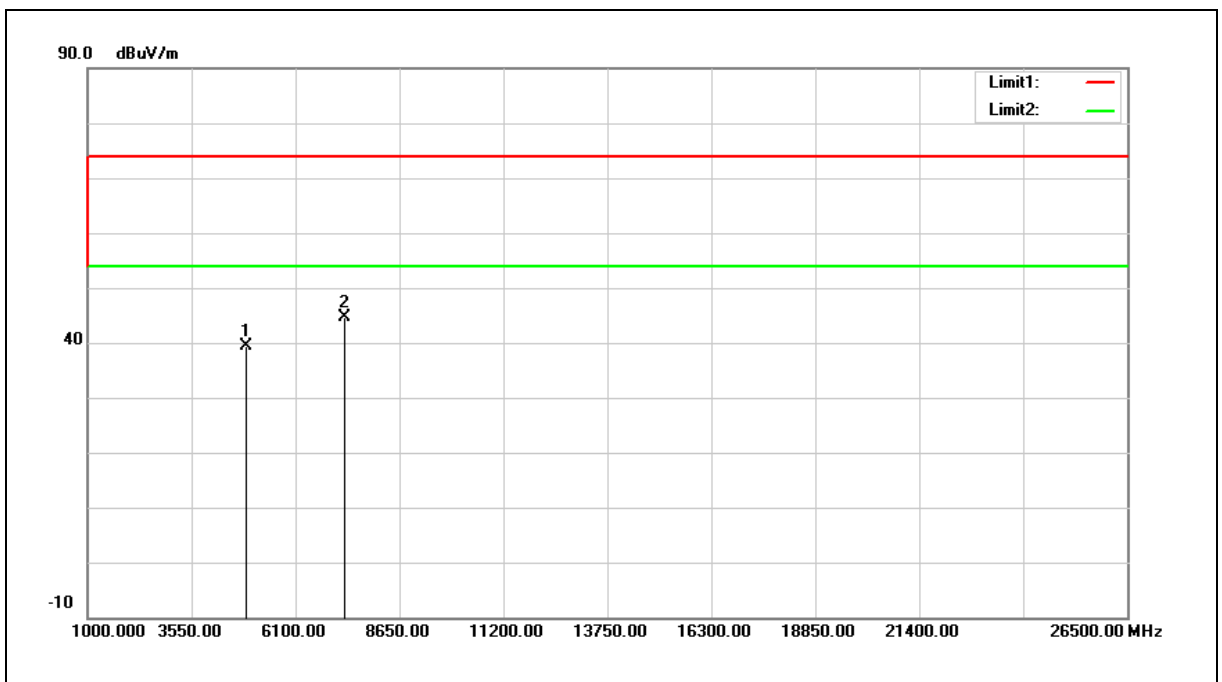
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4882.000	35.96	2.98	38.94	74.00	-35.06	peak
2	7323.000	34.74	9.18	43.92	74.00	-30.08	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2441 MHz		
Mode:	Mode 4		
Ant.Polar.:	Vertical		



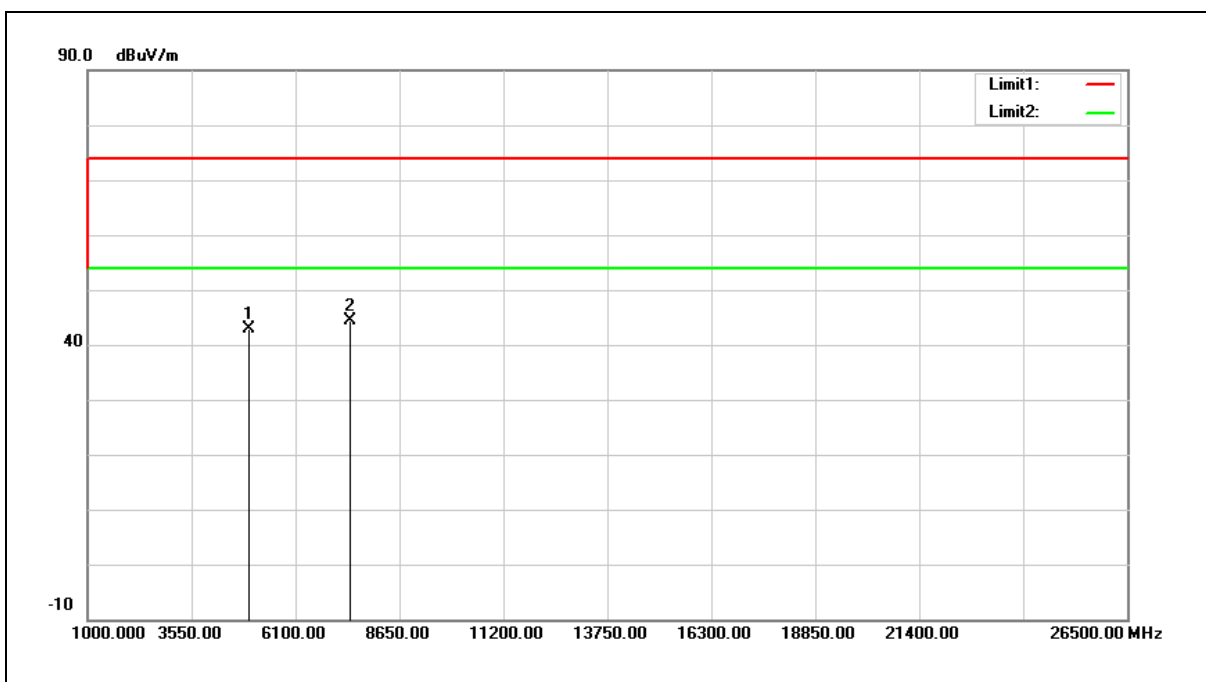
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4882.000	36.50	2.98	39.48	74.00	-34.52	peak
2	7323.000	35.33	9.18	44.51	74.00	-29.49	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2480 MHz		
Mode:	Mode 4		
Ant.Polar.:	Horizontal		



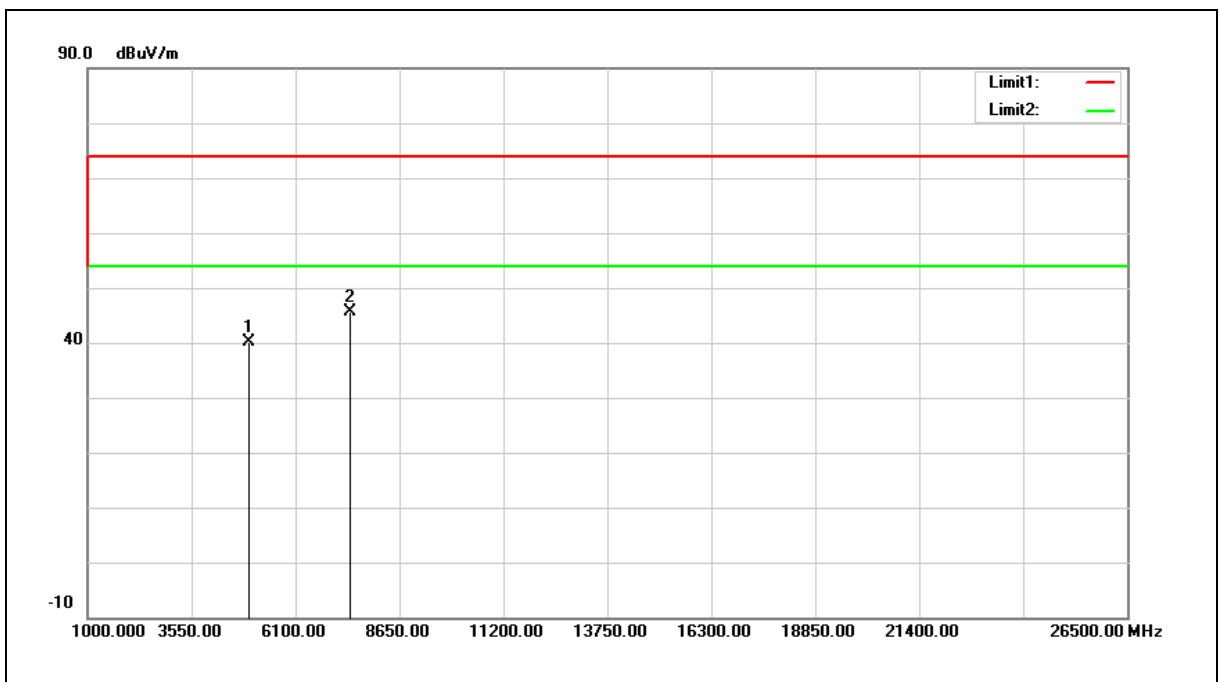
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	39.75	3.17	42.92	74.00	-31.08	peak
2	7440.000	34.72	9.55	44.27	74.00	-29.73	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2480 MHz		
Mode:	Mode 4		
Ant.Polar.:	Vertical		



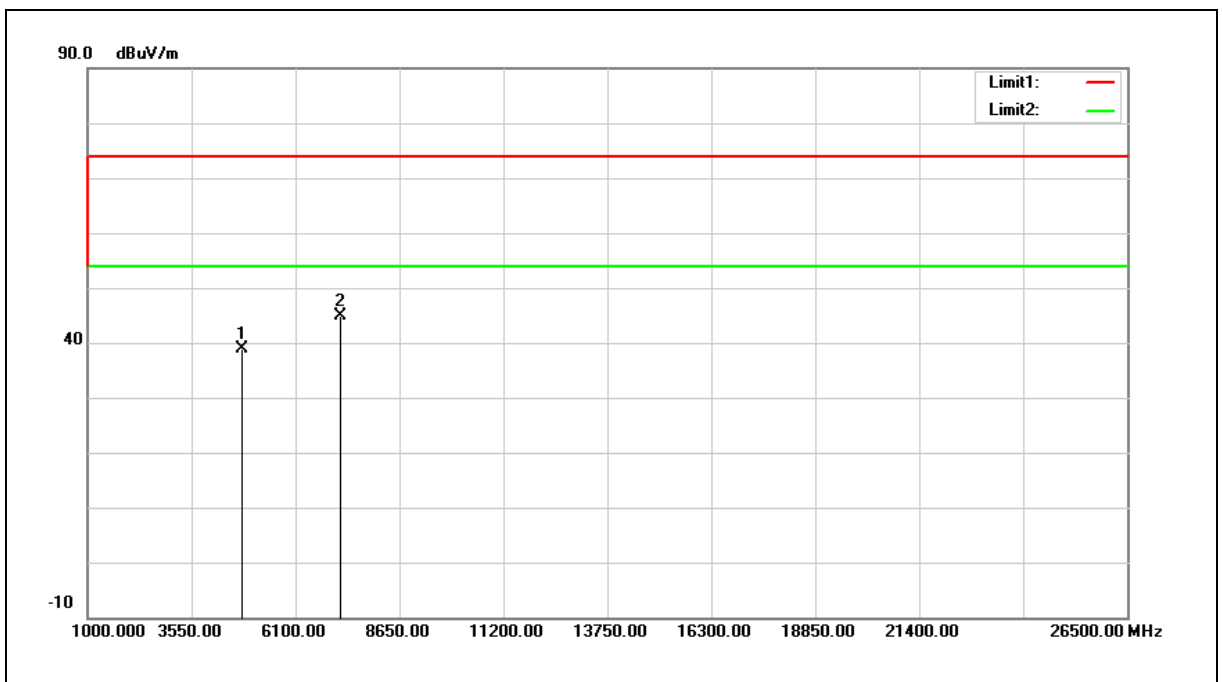
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	37.03	3.17	40.20	74.00	-33.80	peak
2	7440.000	36.19	9.55	45.74	74.00	-28.26	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2402 MHz		
Mode:	Mode 5		
Ant.Polar.:	Horizontal		



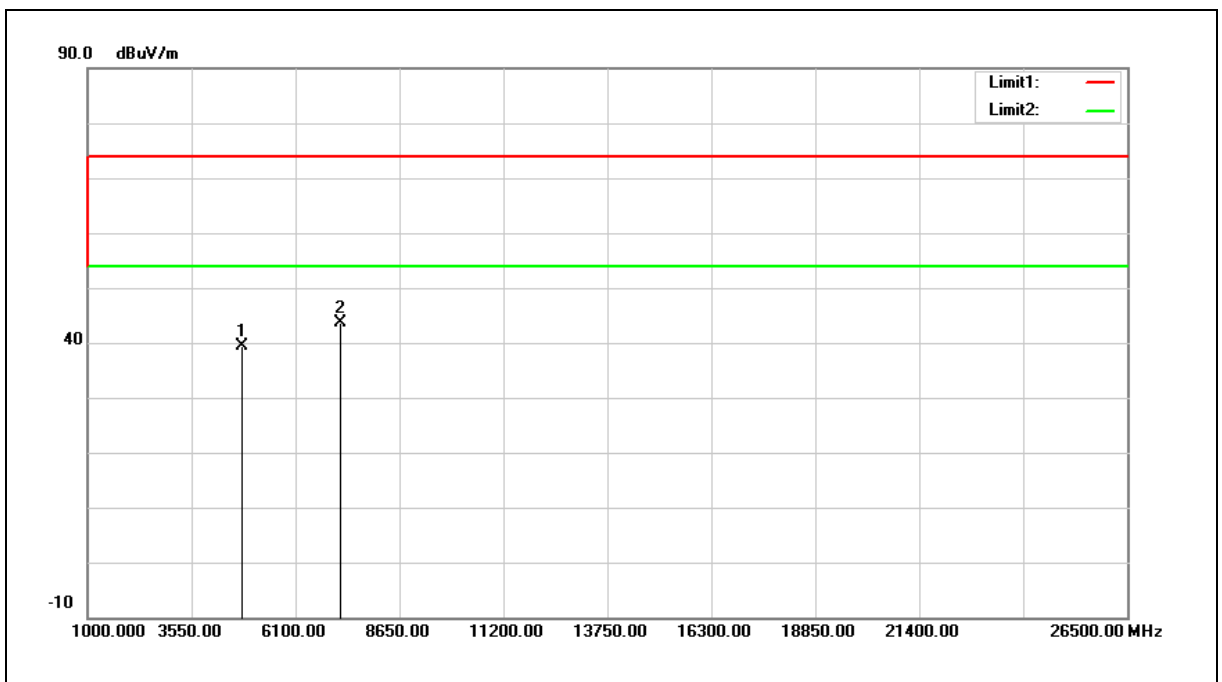
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	36.03	2.80	38.83	74.00	-35.17	peak
2	7206.000	35.99	8.82	44.81	74.00	-29.19	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2402 MHz		
Mode:	Mode 5		
Ant.Polar.:	Vertical		



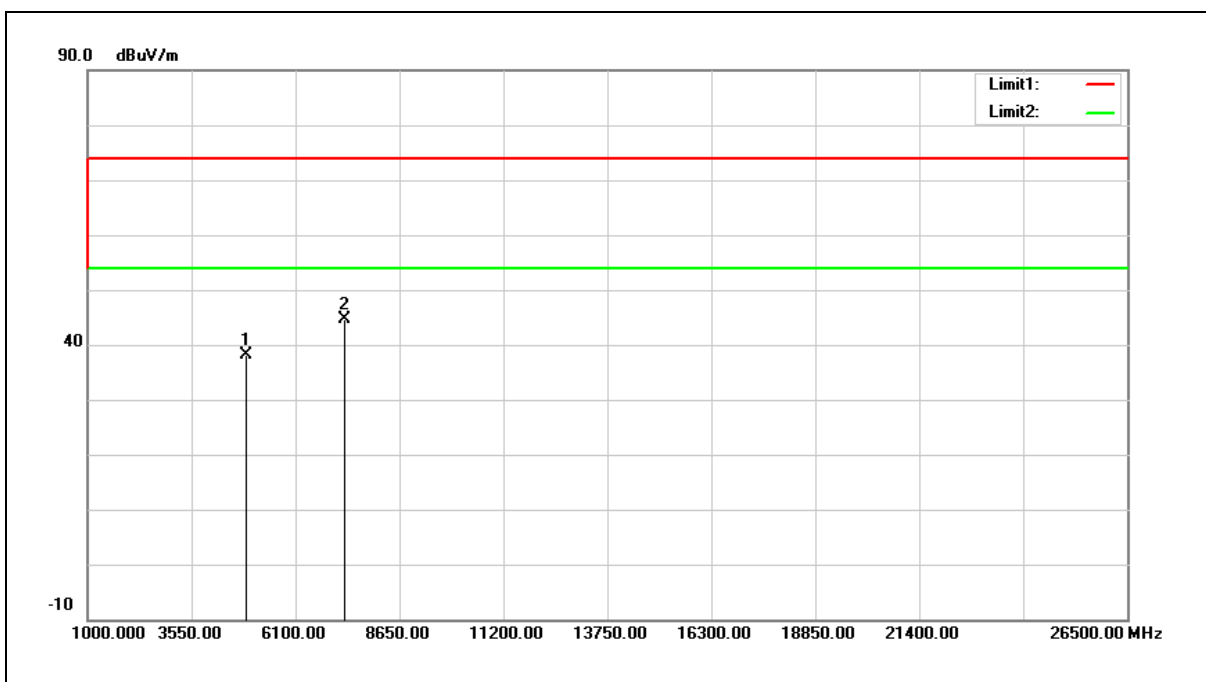
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	36.58	2.80	39.38	74.00	-34.62	peak
2	7206.000	34.78	8.82	43.60	74.00	-30.40	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2440 MHz		
Mode:	Mode 5		
Ant.Polar.:	Horizontal		



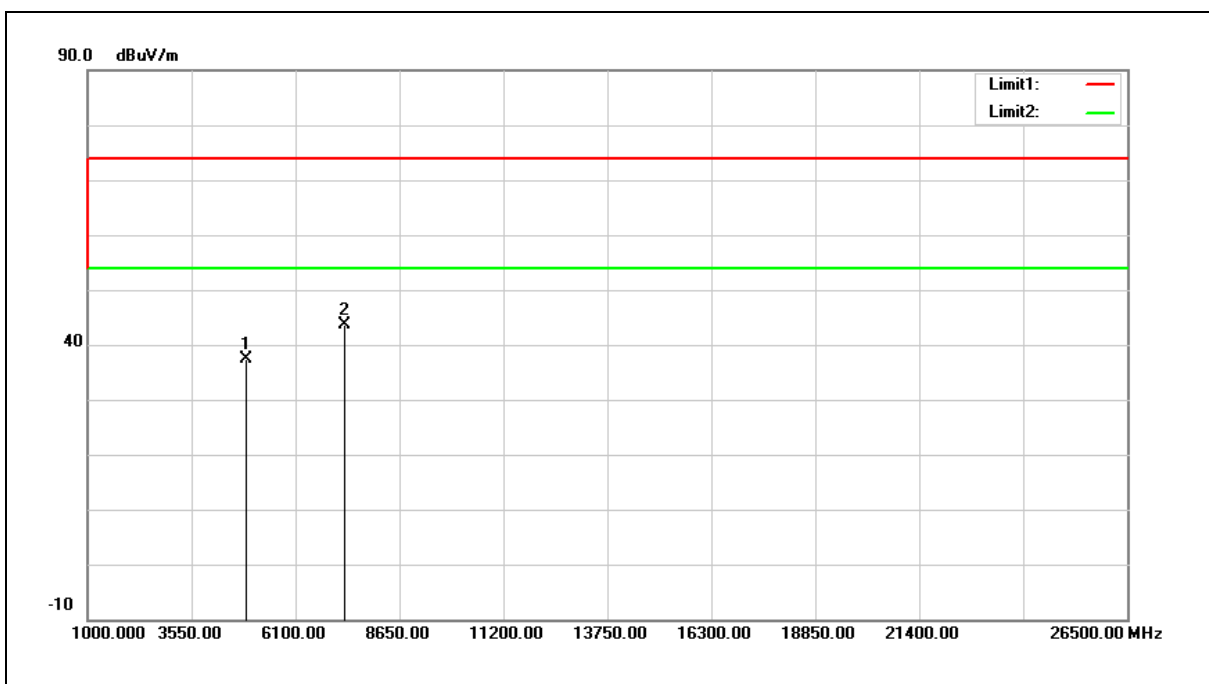
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4880.000	35.17	2.97	38.14	74.00	-35.86	peak
2	7320.000	35.54	9.18	44.72	74.00	-29.28	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2440 MHz		
Mode:	Mode 5		
Ant.Polar.:	Vertical		



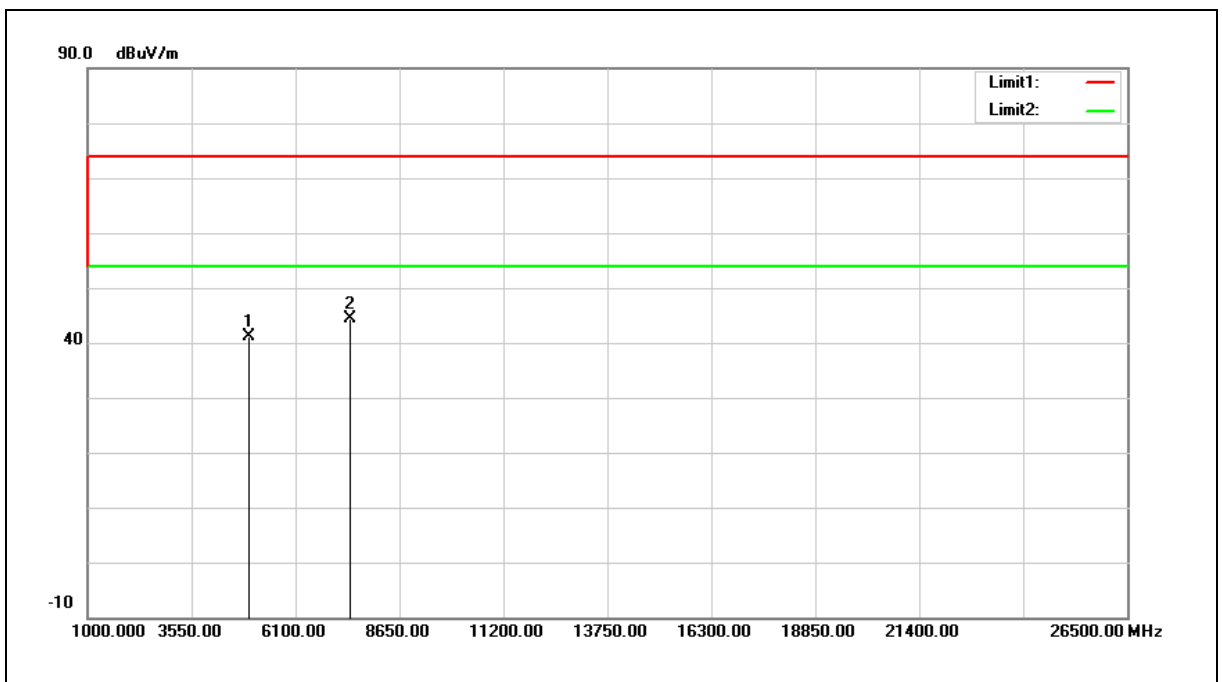
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4880.000	34.50	2.97	37.47	74.00	-36.53	peak
2	7320.000	34.51	9.18	43.69	74.00	-30.31	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2480 MHz		
Mode:	Mode 5		
Ant.Polar.:	Horizontal		



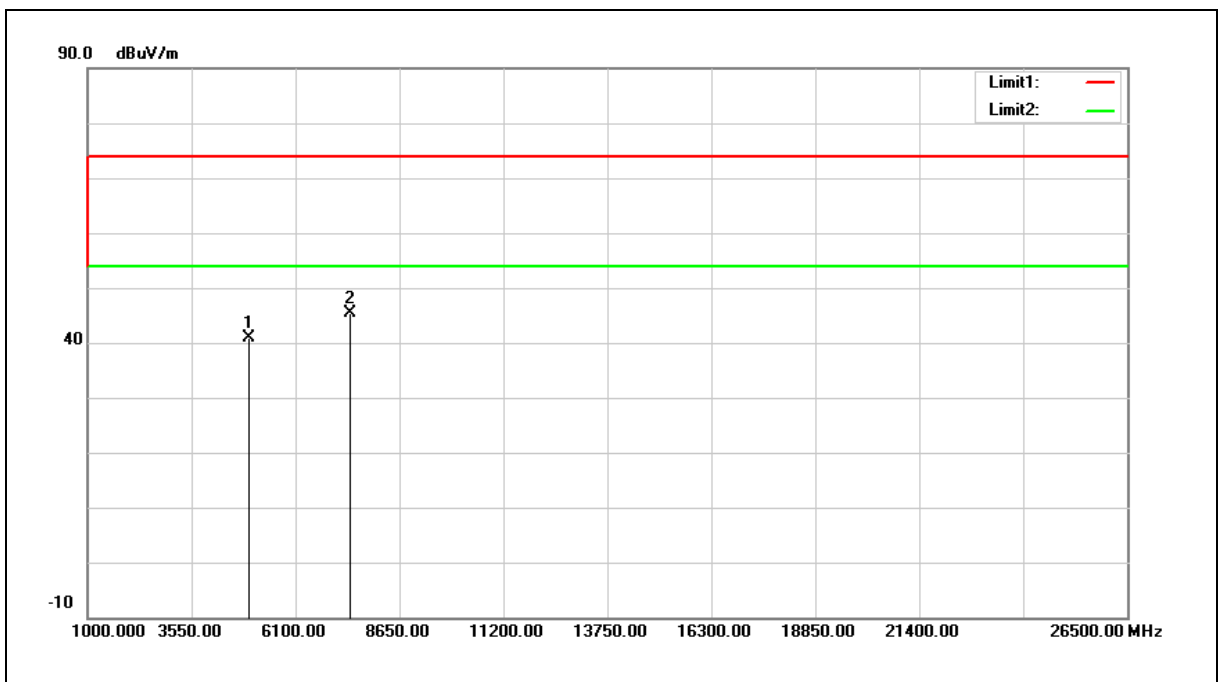
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	38.08	3.17	41.25	74.00	-32.75	peak
2	7440.000	34.87	9.55	44.42	74.00	-29.58	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2480 MHz		
Mode:	Mode 5		
Ant.Polar.:	Vertical		



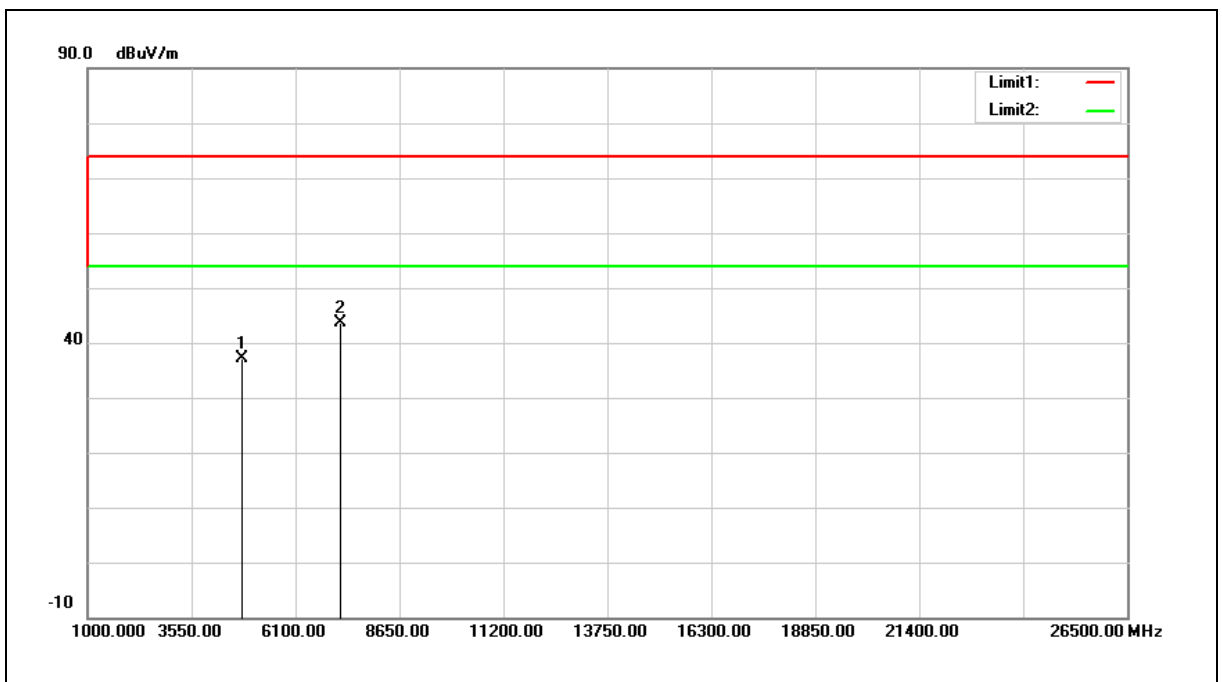
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	37.65	3.17	40.82	74.00	-33.18	peak
2	7440.000	35.89	9.55	45.44	74.00	-28.56	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2402 MHz		
Mode:	Mode 6		
Ant.Polar.:	Horizontal		



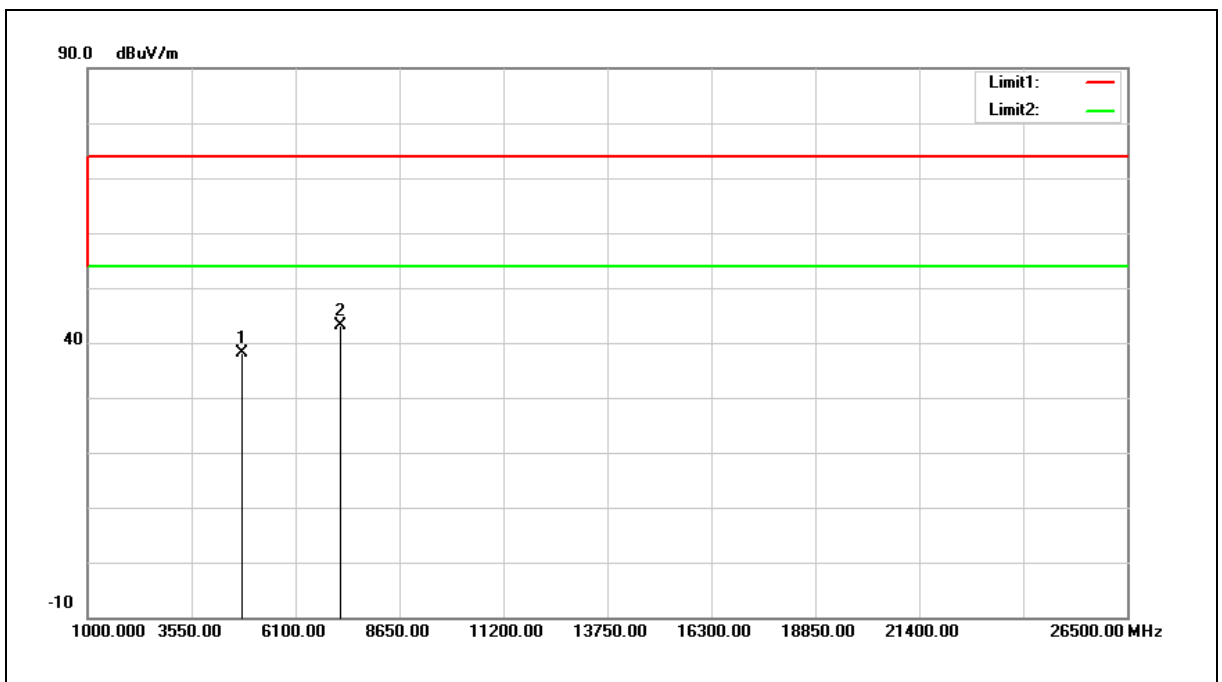
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	34.39	2.80	37.19	74.00	-36.81	peak
2	7206.000	34.81	8.82	43.63	74.00	-30.37	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2402 MHz		
Mode:	Mode 6		
Ant.Polar.:	Vertical		



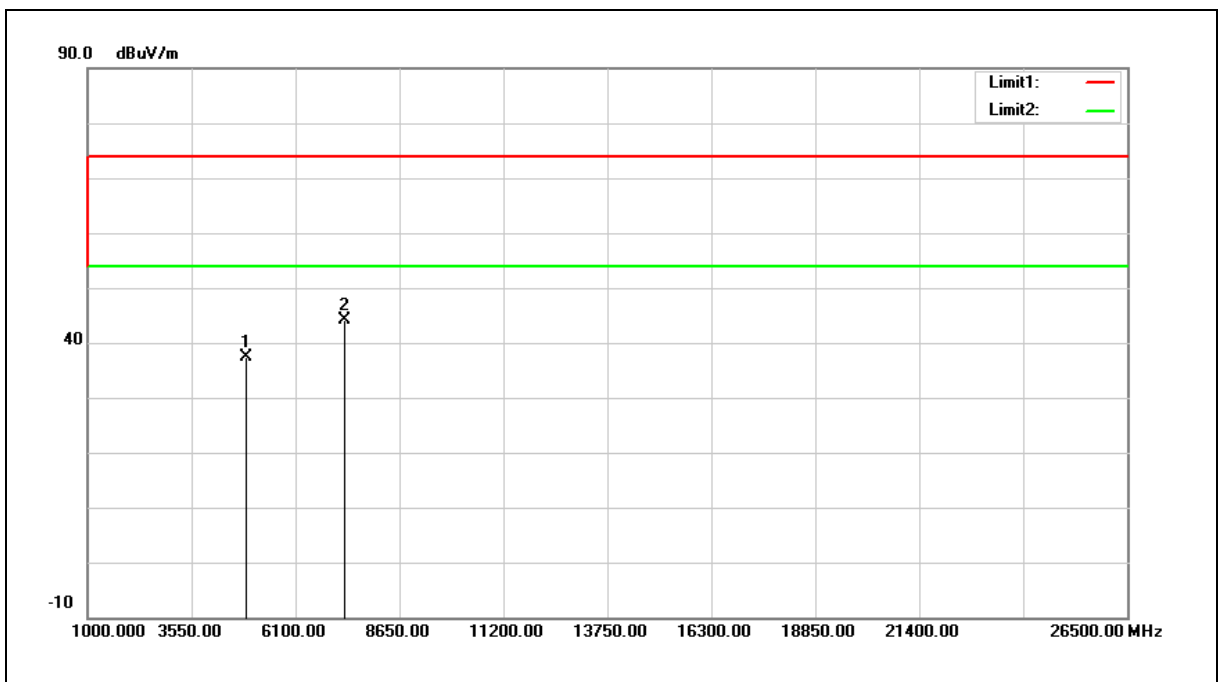
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	35.25	2.80	38.05	74.00	-35.95	peak
2	7206.000	34.39	8.82	43.21	74.00	-30.79	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2440 MHz		
Mode:	Mode 6		
Ant.Polar.:	Horizontal		



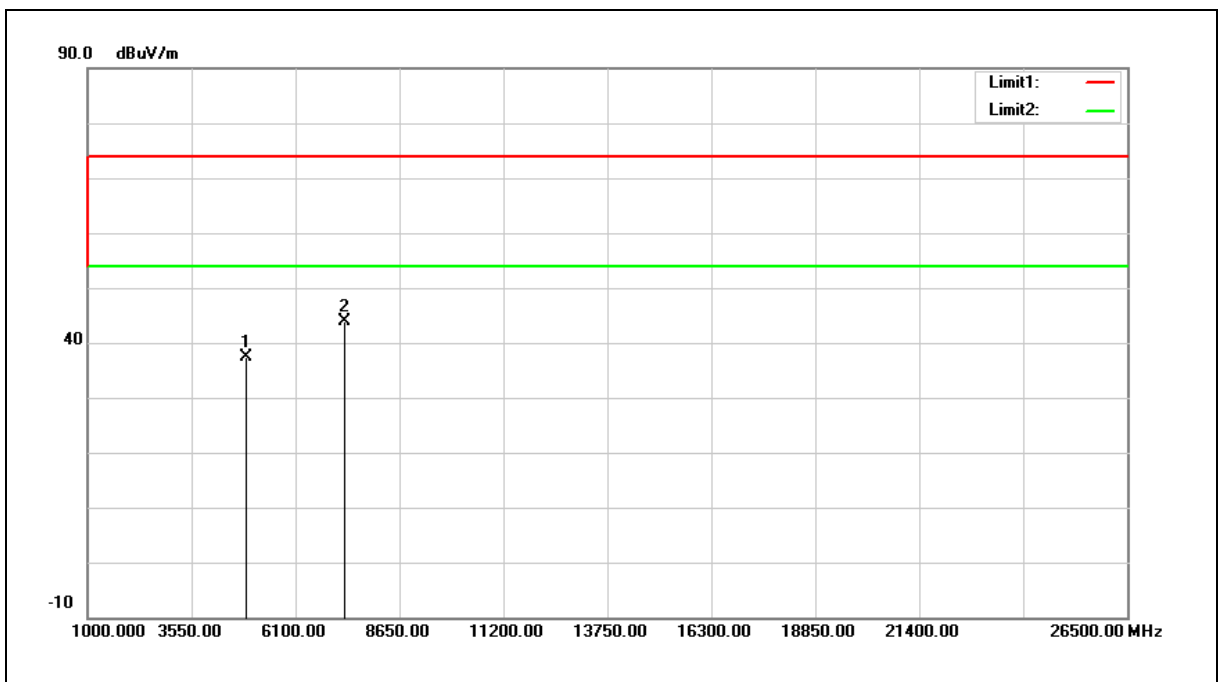
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4880.000	34.39	2.97	37.36	74.00	-36.64	peak
2	7320.000	34.97	9.18	44.15	74.00	-29.85	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2440 MHz		
Mode:	Mode 6		
Ant.Polar.:	Vertical		



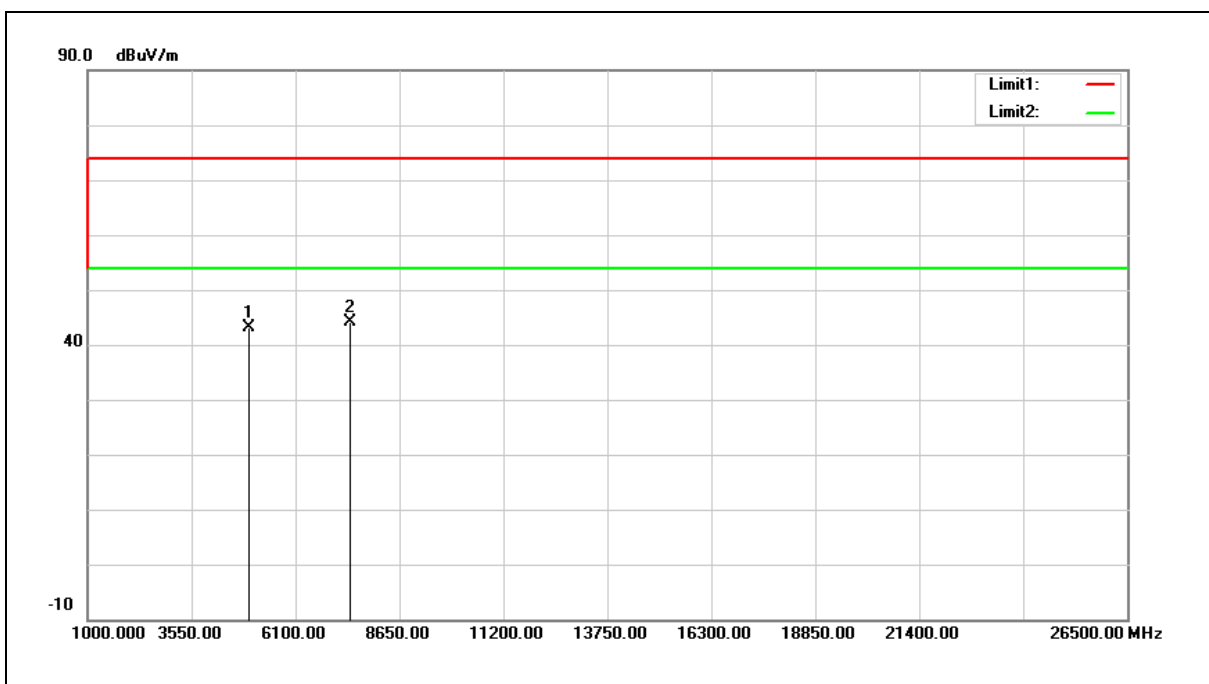
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4880.000	34.41	2.97	37.38	74.00	-36.62	peak
2	7320.000	34.66	9.18	43.84	74.00	-30.16	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2480 MHz		
Mode:	Mode 6		
Ant.Polar.:	Horizontal		



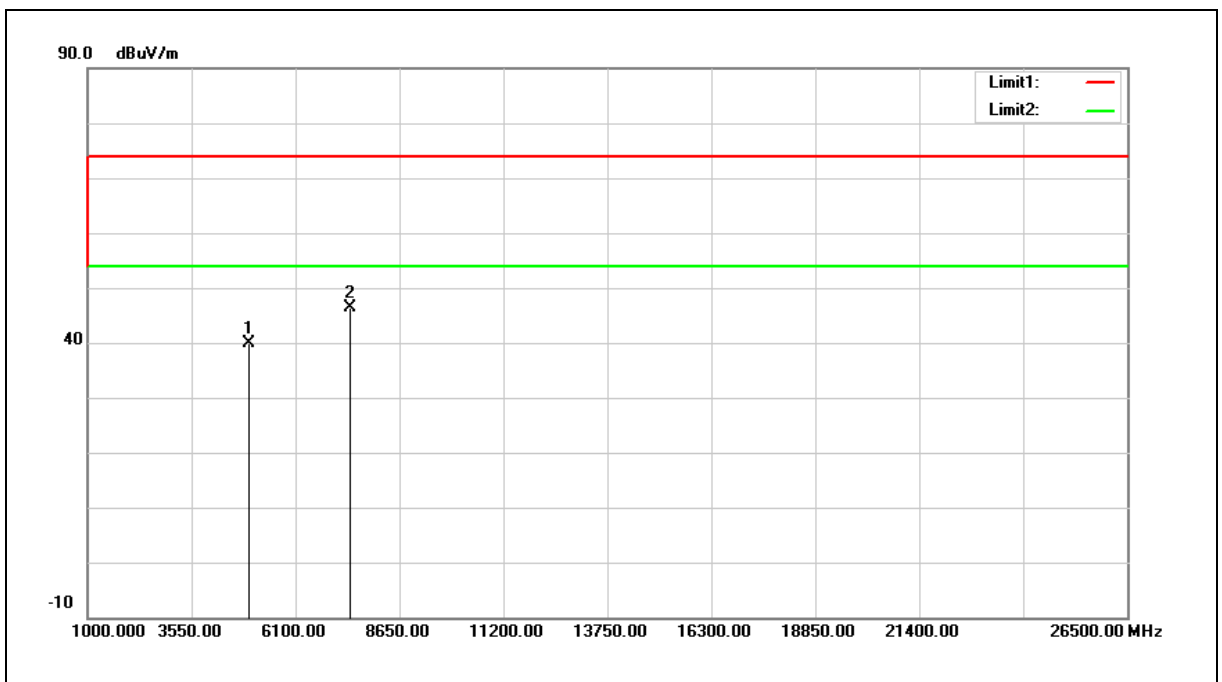
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	39.99	3.17	43.16	74.00	-30.84	peak
2	7440.000	34.61	9.55	44.16	74.00	-29.84	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2480 MHz		
Mode:	Mode 6		
Ant.Polar.:	Vertical		



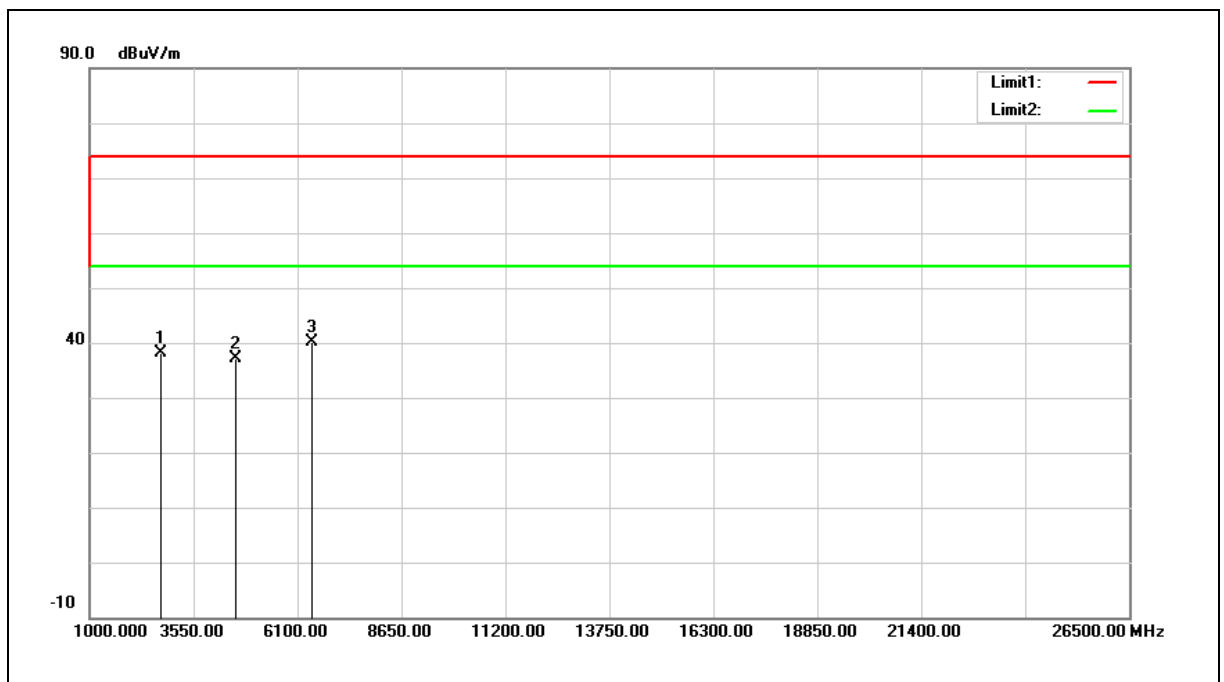
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	36.77	3.17	39.94	74.00	-34.06	peak
2	7440.000	36.73	9.55	46.28	74.00	-27.72	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Mode:	Mode 7		
Ant.Polar.:	Horizontal		
Description:			



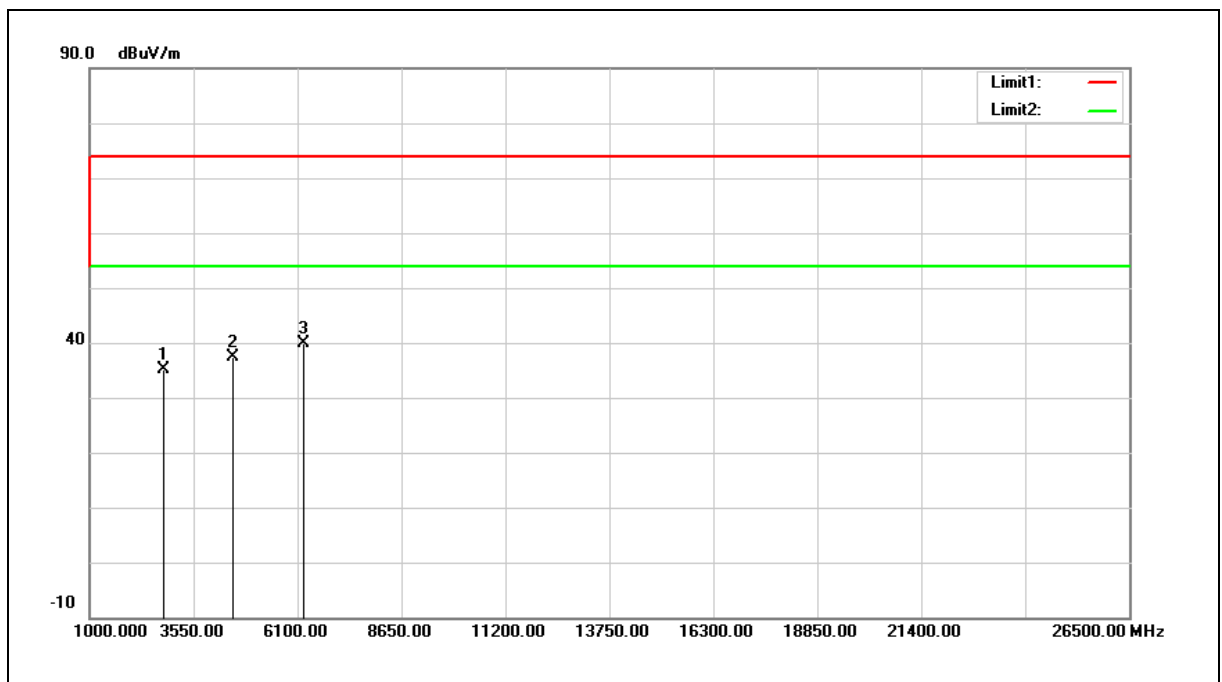
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2717.000	40.29	-2.08	38.21	74.00	-35.79	peak
2	4570.000	34.99	2.22	37.21	74.00	-36.79	peak
3	6457.000	33.63	6.47	40.10	74.00	-33.90	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Mode:	Mode 7		
Ant.Polar.:	Vertical		
Description:			



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2802.000	37.00	-1.77	35.23	74.00	-38.77	peak
2	4502.000	35.37	2.05	37.42	74.00	-36.58	peak
3	6253.000	33.98	5.79	39.77	74.00	-34.23	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

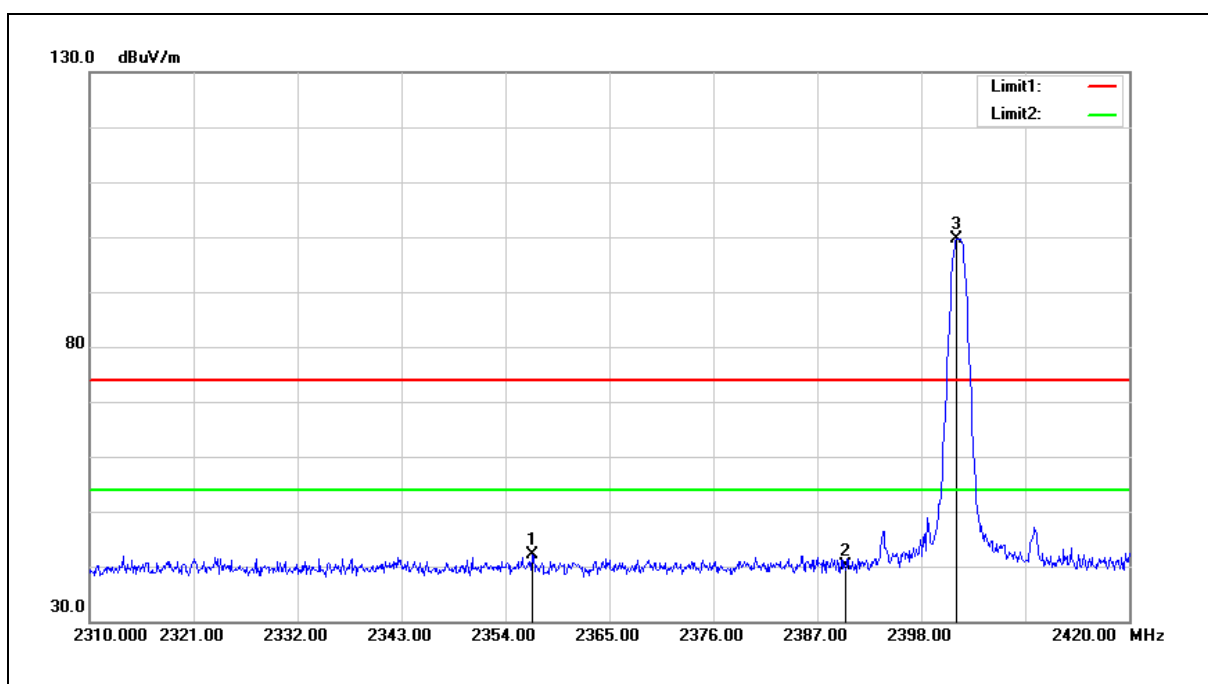
2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

頻帶邊緣

附註：其上下邊緣落於低功率射頻電機第 2.7 節所列頻帶內之混附發射，其電場強度必須符合第 2.8 節的限制規定。

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2402 MHz		
Mode:	Mode 2		
Ant.Polar.:	Horizontal		



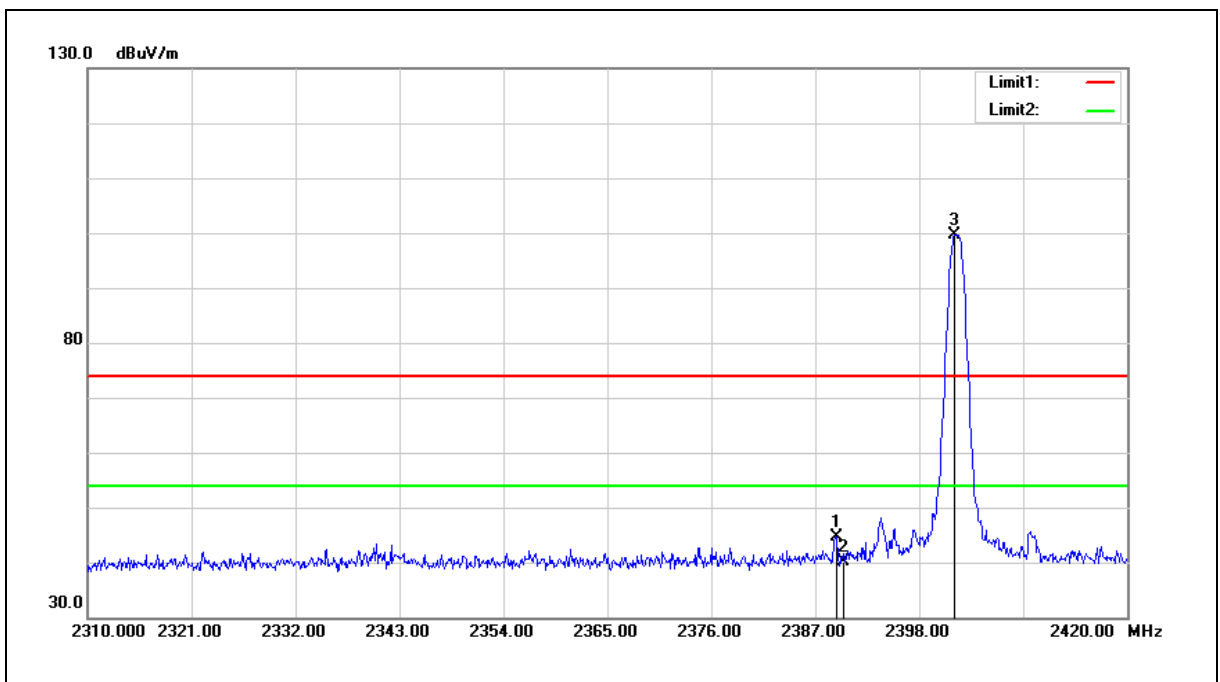
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2356.860	45.60	-3.40	42.20	74.00	-31.80	peak
2	2390.000	43.51	-3.28	40.23	74.00	-33.77	peak
3	2401.740	102.94	-3.23	99.71	--	--	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2402 MHz		
Mode:	Mode 2		
Ant.Polar.:	Vertical		



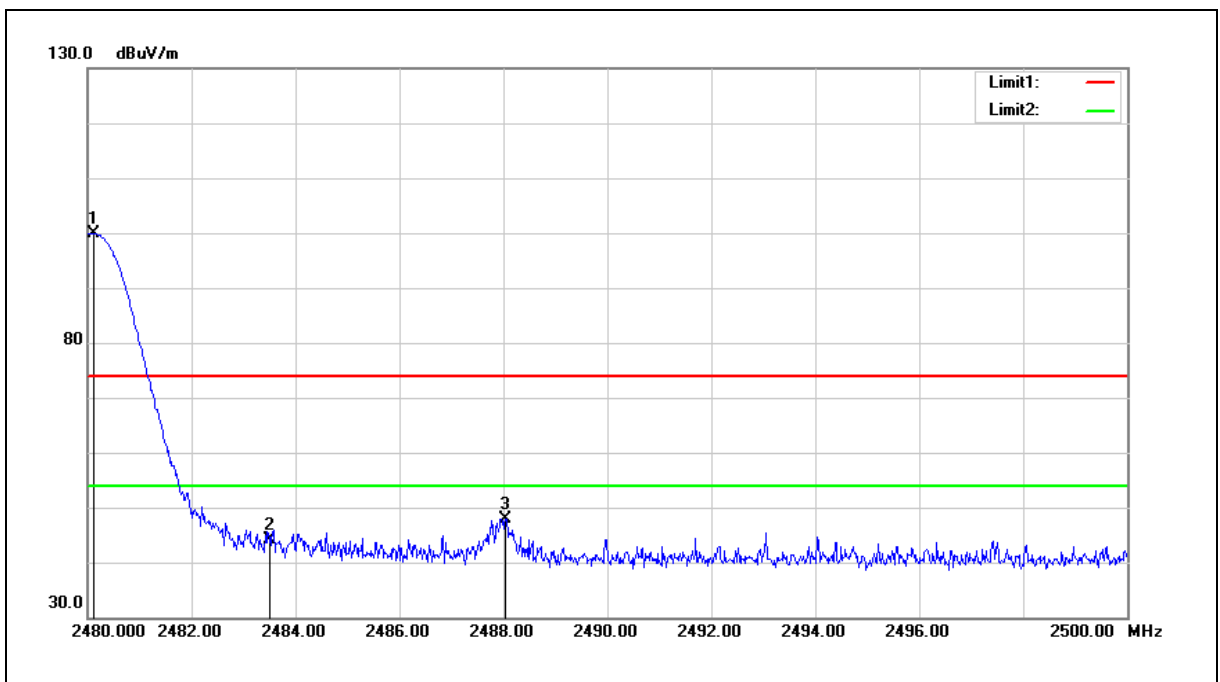
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.200	47.94	-3.28	44.66	74.00	-29.34	peak
2	2390.000	43.51	-3.28	40.23	74.00	-33.77	peak
3	2401.740	102.83	-3.23	99.60	--	--	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 2		
Ant.Polar.:	Horizontal		



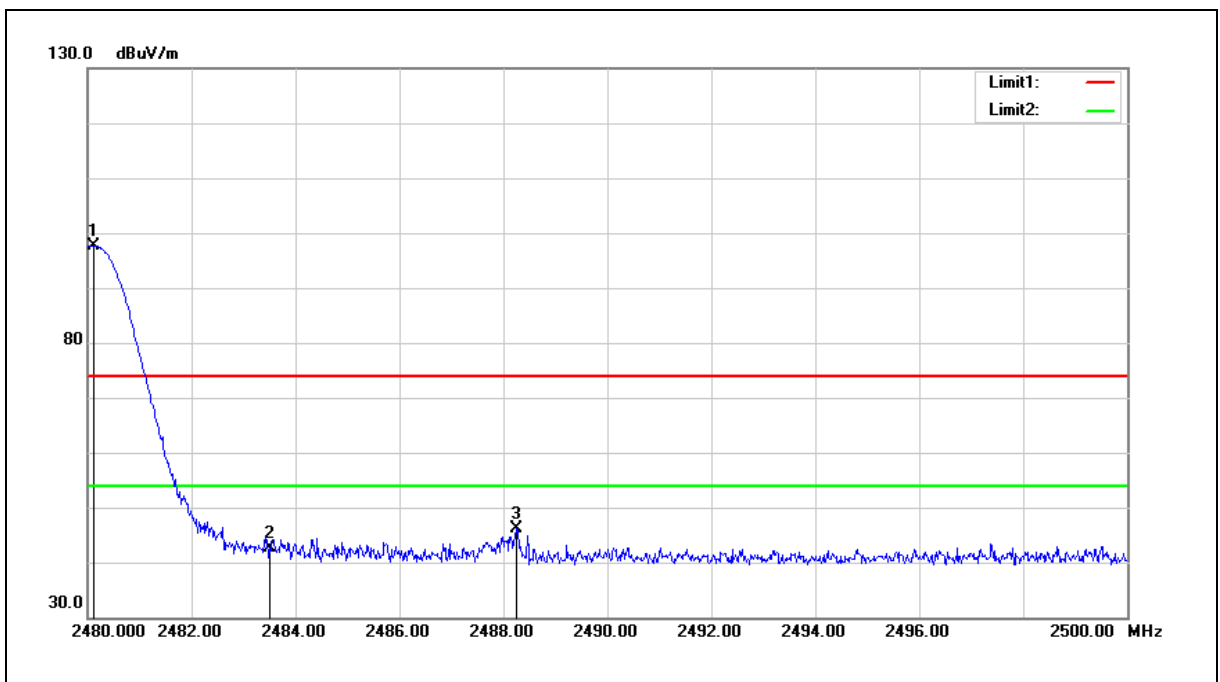
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.120	102.87	-2.94	99.93	--	--	peak
2	2483.500	46.97	-2.93	44.04	74.00	-29.96	peak
3	2488.040	50.86	-2.92	47.94	74.00	-26.06	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 2		
Ant.Polar.:	Vertical		



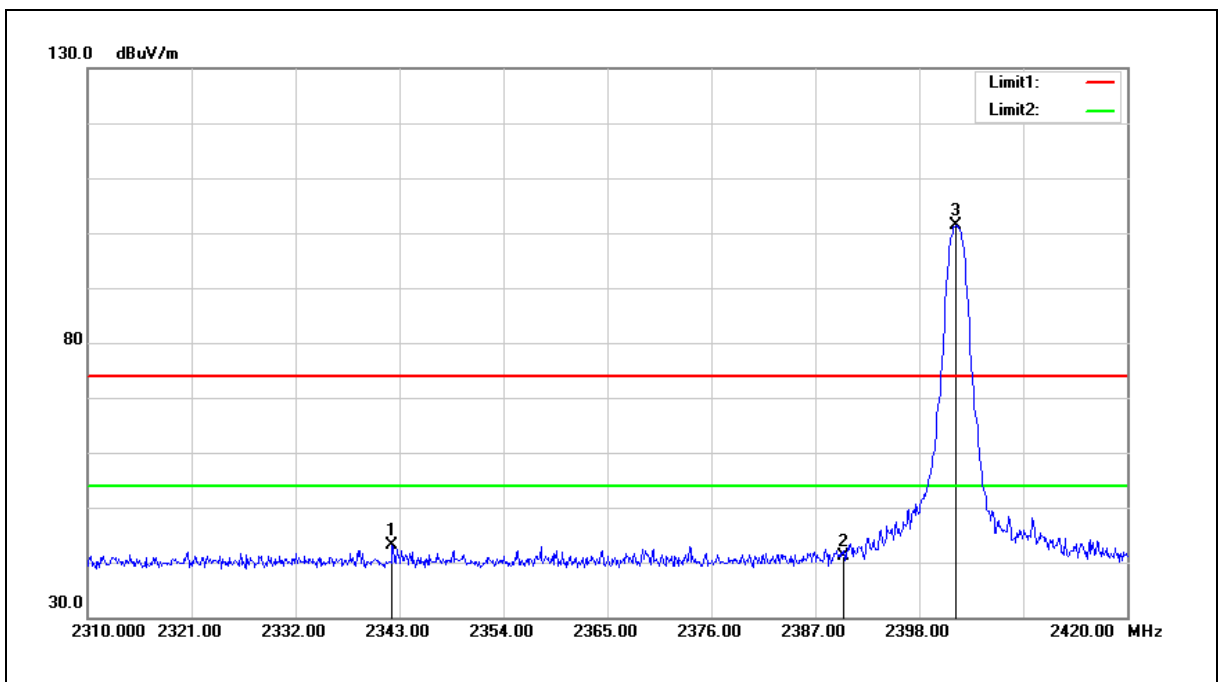
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.120	100.69	-2.94	97.75	--	--	peak
2	2483.500	45.49	-2.93	42.56	74.00	-31.44	peak
3	2488.260	49.06	-2.92	46.14	74.00	-27.86	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2402 MHz		
Mode:	Mode 4		
Ant.Polar.:	Horizontal		



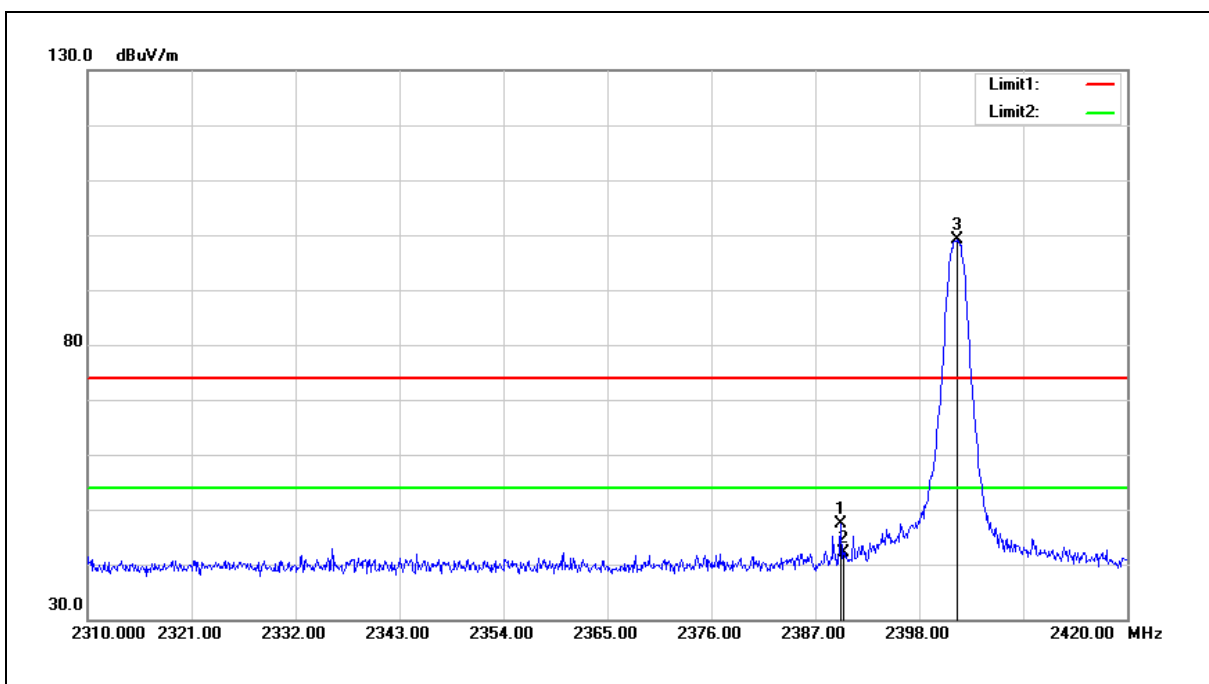
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2342.230	46.69	-3.45	43.24	74.00	-30.76	peak
2	2390.000	44.38	-3.28	41.10	74.00	-32.90	peak
3	2401.850	104.67	-3.23	101.44	--	--	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2402 MHz		
Mode:	Mode 4		
Ant.Polar.:	Vertical		



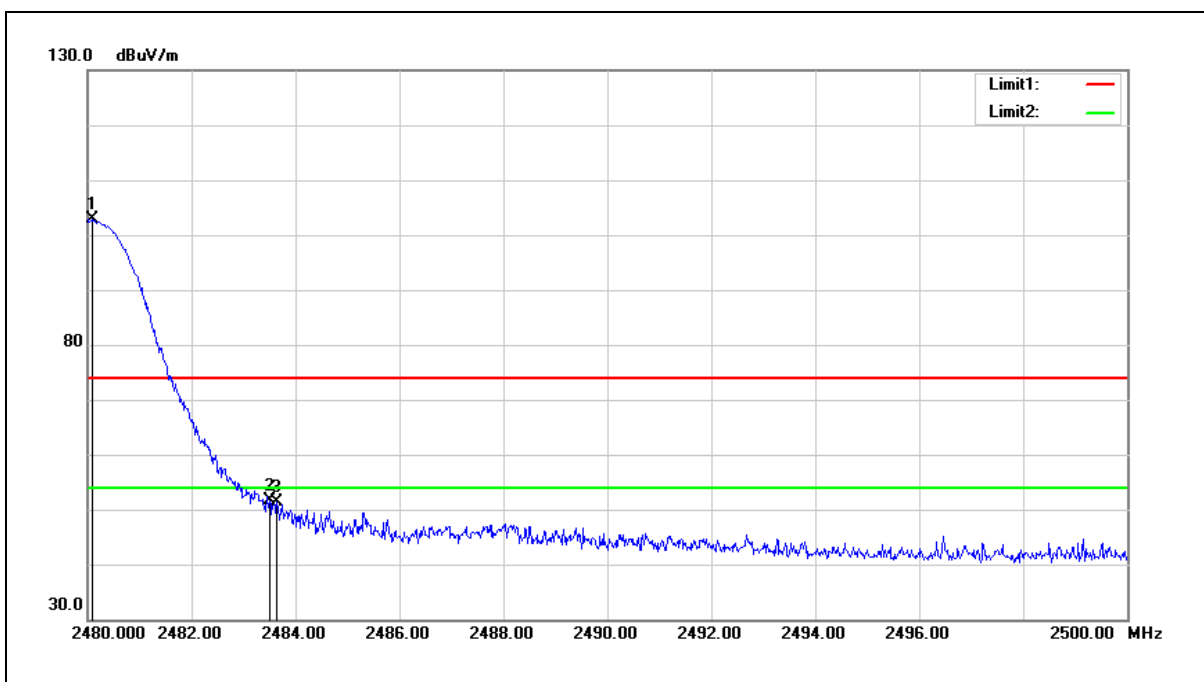
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.640	50.55	-3.28	47.27	74.00	-26.73	peak
2	2390.000	45.40	-3.28	42.12	74.00	-31.88	peak
3	2401.960	102.26	-3.23	99.03	--	--	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 4		
Ant.Polar.:	Horizontal		



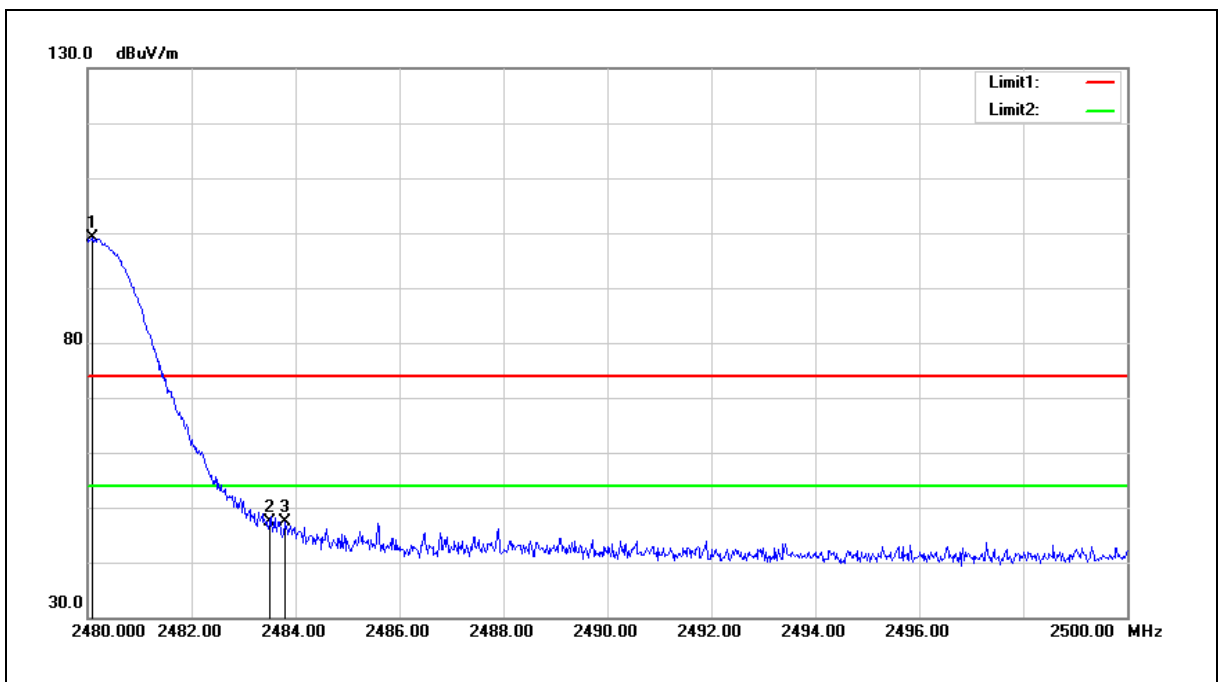
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.080	105.73	-2.94	102.79	--	--	peak
2	2483.500	54.62	-2.93	51.69	74.00	-22.31	peak
3	2483.640	54.23	-2.93	51.30	74.00	-22.70	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 4		
Ant.Polar.:	Vertical		



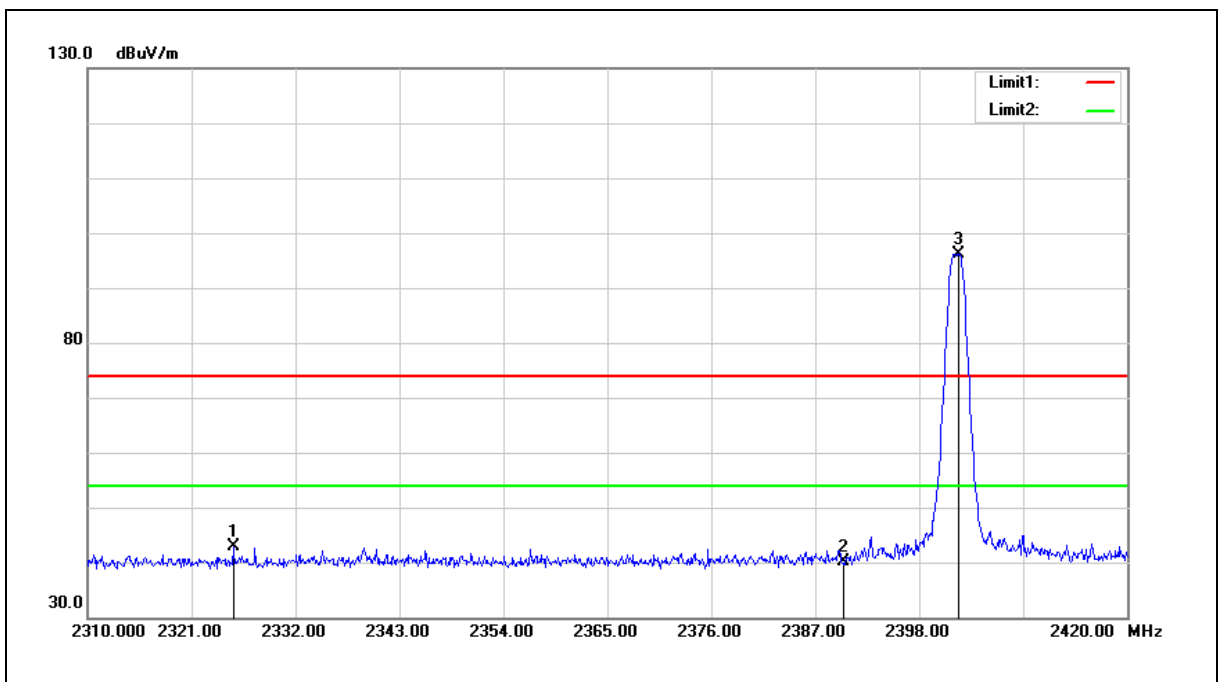
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.080	101.97	-2.94	99.03	--	--	peak
2	2483.500	50.30	-2.93	47.37	74.00	-26.63	peak
3	2483.800	50.30	-2.93	47.37	74.00	-26.63	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2402 MHz		
Mode:	Mode 5		
Ant.Polar.:	Horizontal		



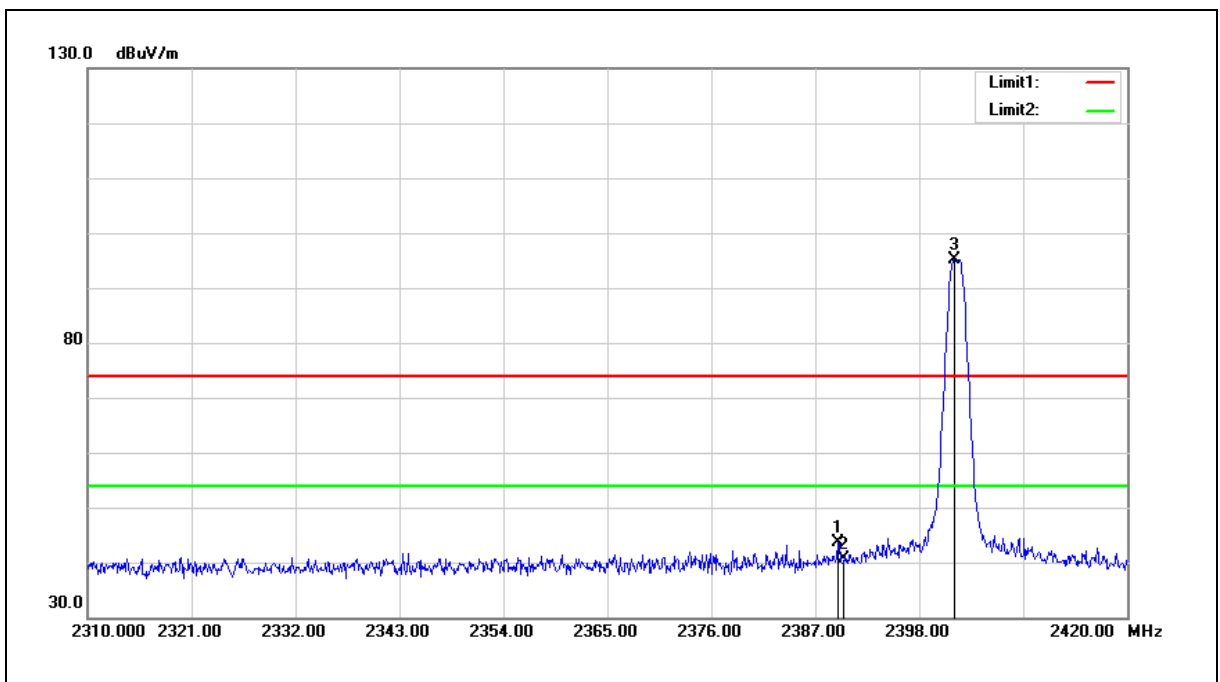
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2325.400	46.31	-3.51	42.80	74.00	-31.20	peak
2	2390.000	43.30	-3.28	40.02	74.00	-33.98	peak
3	2402.180	99.44	-3.23	96.21	--	--	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2402 MHz		
Mode:	Mode 5		
Ant.Polar.:	Vertical		



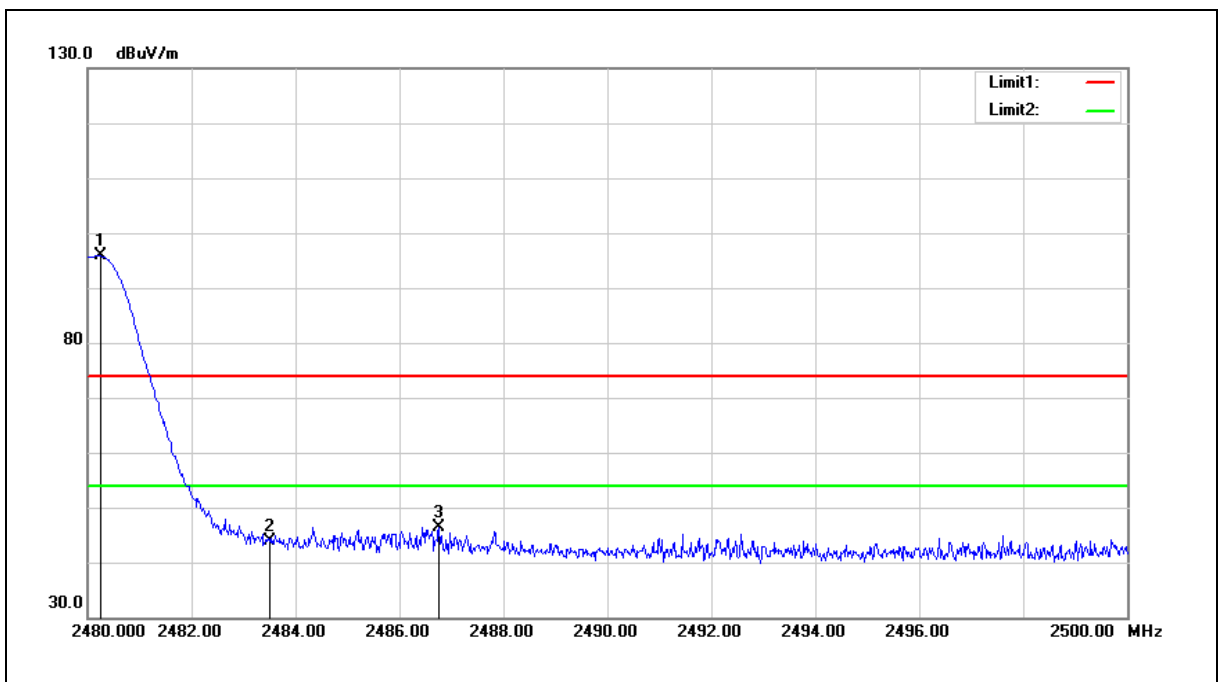
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.420	46.83	-3.28	43.55	74.00	-30.45	peak
2	2390.000	44.03	-3.28	40.75	74.00	-33.25	peak
3	2401.740	98.30	-3.23	95.07	--	--	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 5		
Ant.Polar.:	Horizontal		



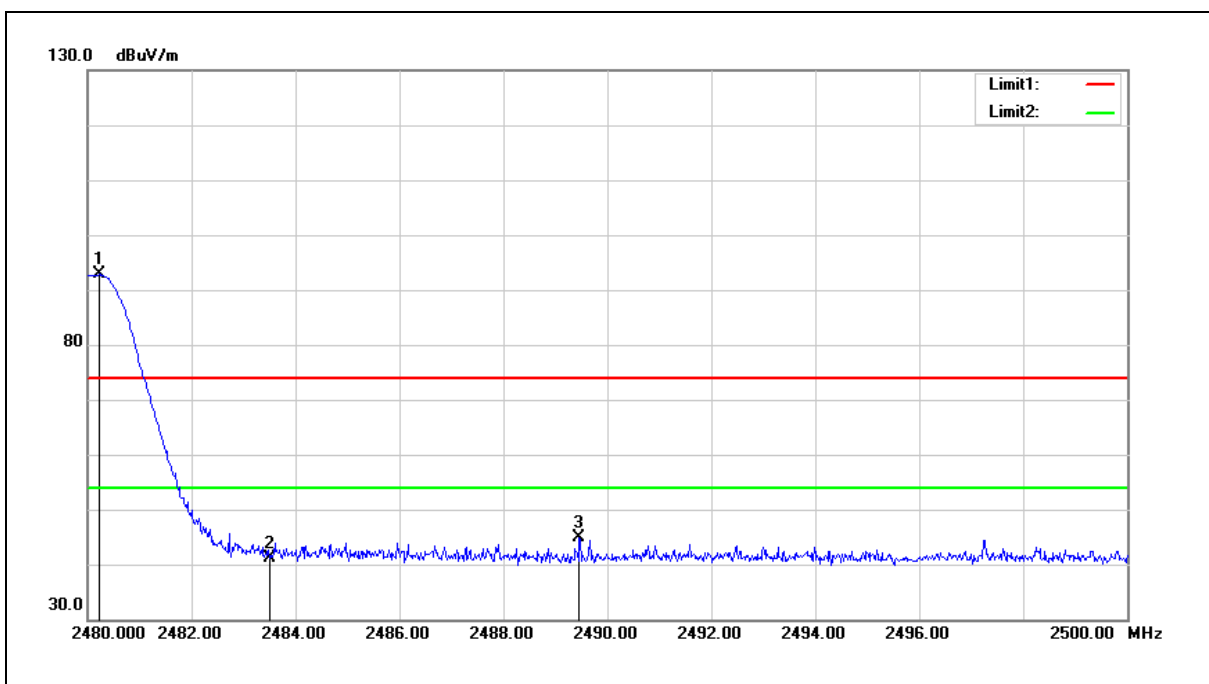
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.240	98.83	-2.94	95.89	--	--	peak
2	2483.500	46.82	-2.93	43.89	74.00	-30.11	peak
3	2486.760	49.32	-2.92	46.40	74.00	-27.60	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 5		
Ant.Polar.:	Vertical		



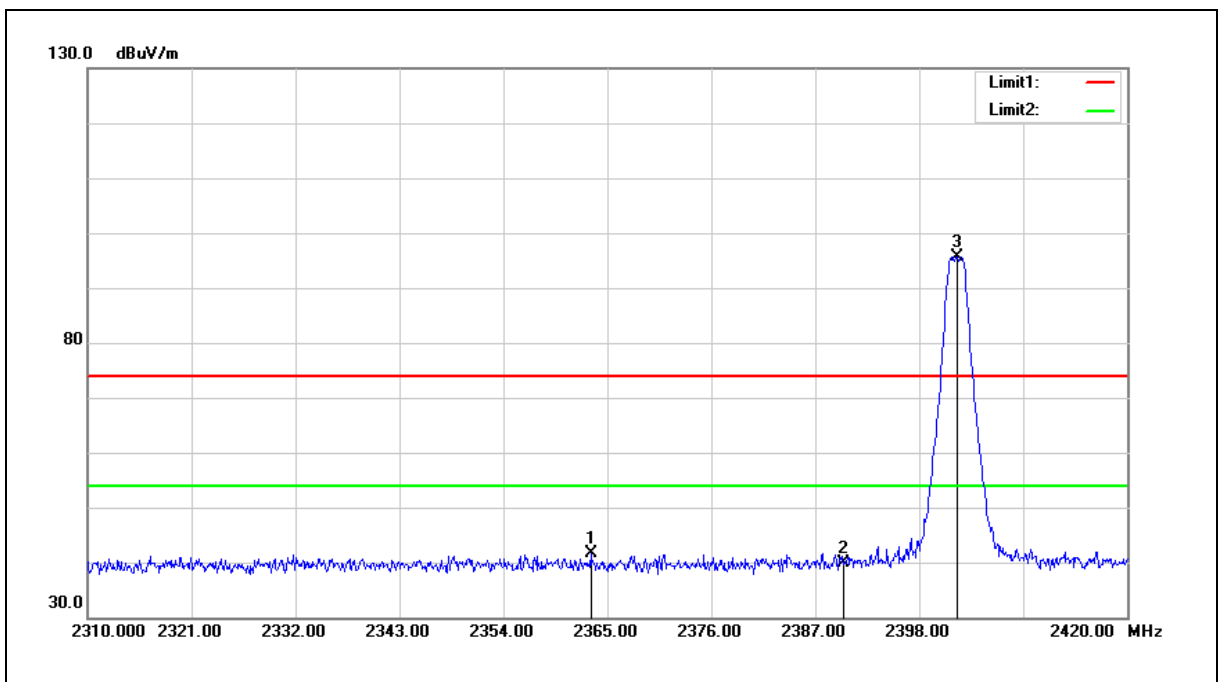
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.220	95.71	-2.94	92.77	--	--	peak
2	2483.500	44.10	-2.93	41.17	74.00	-32.83	peak
3	2489.460	47.73	-2.91	44.82	74.00	-29.18	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2402 MHz		
Mode:	Mode 6		
Ant.Polar.:	Horizontal		



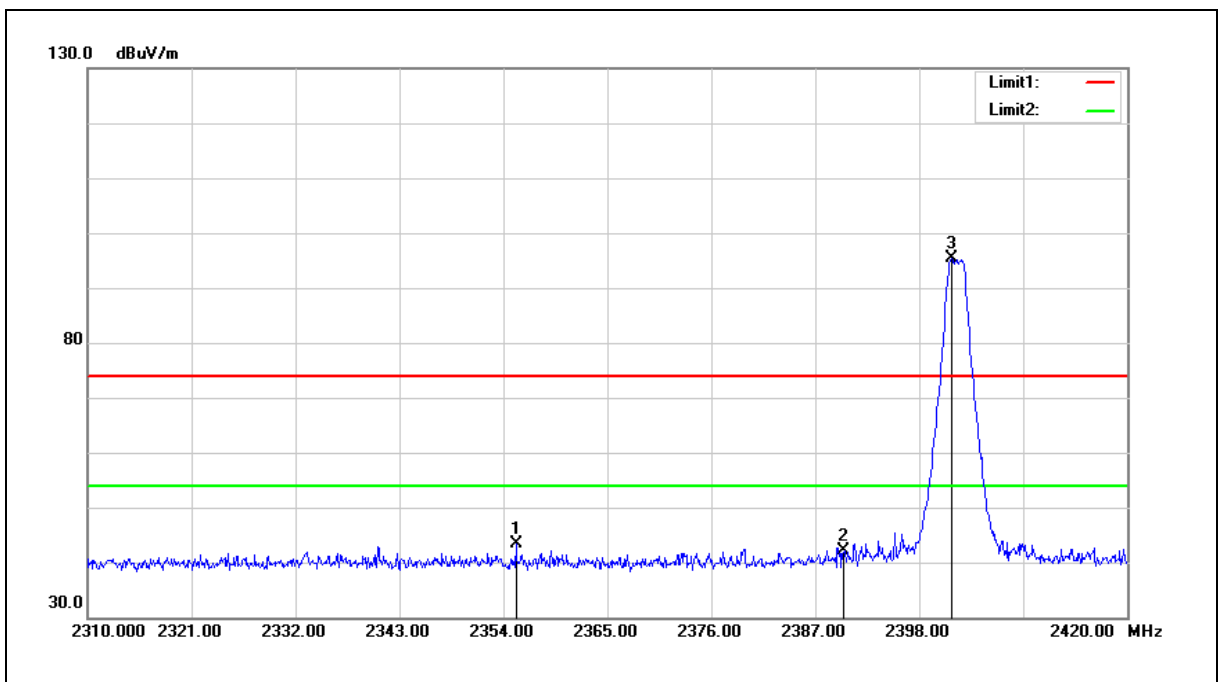
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2363.240	45.01	-3.38	41.63	74.00	-32.37	peak
2	2390.000	43.04	-3.28	39.76	74.00	-34.24	peak
3	2401.960	98.95	-3.23	95.72	--	--	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2402 MHz		
Mode:	Mode 6		
Ant.Polar.:	Vertical		



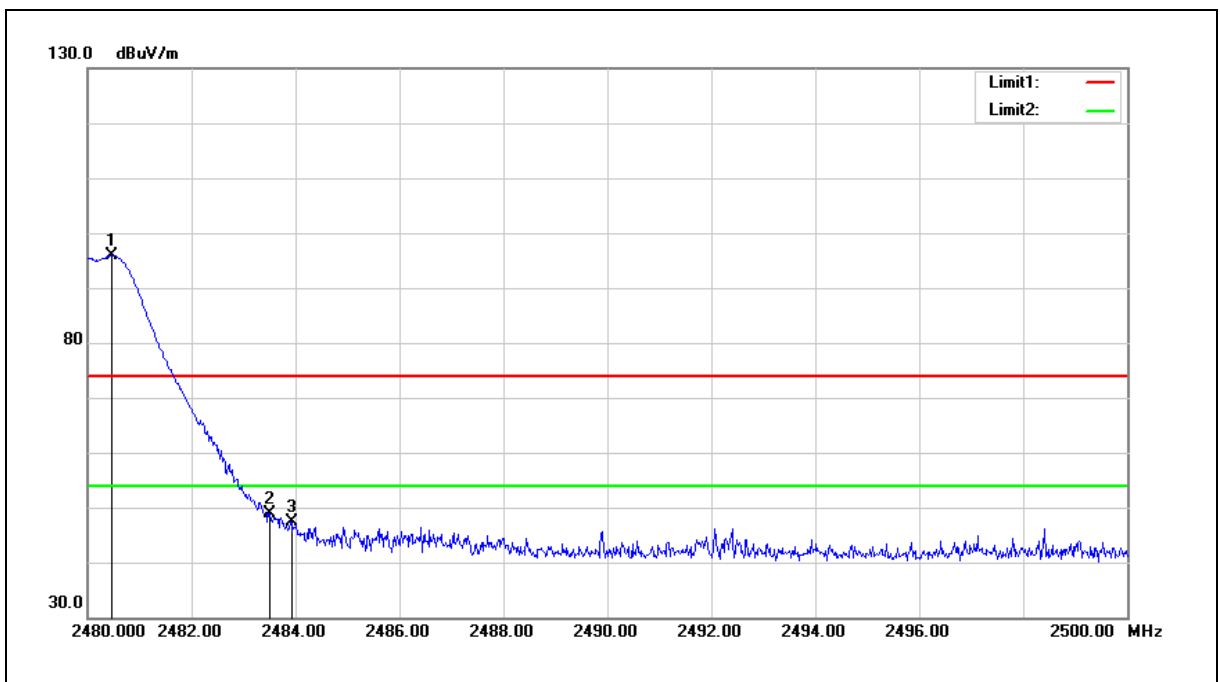
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2355.320	46.73	-3.40	43.33	74.00	-30.67	peak
2	2390.000	45.45	-3.28	42.17	74.00	-31.83	peak
3	2401.410	98.52	-3.24	95.28	--	--	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 6		
Ant.Polar.:	Horizontal		



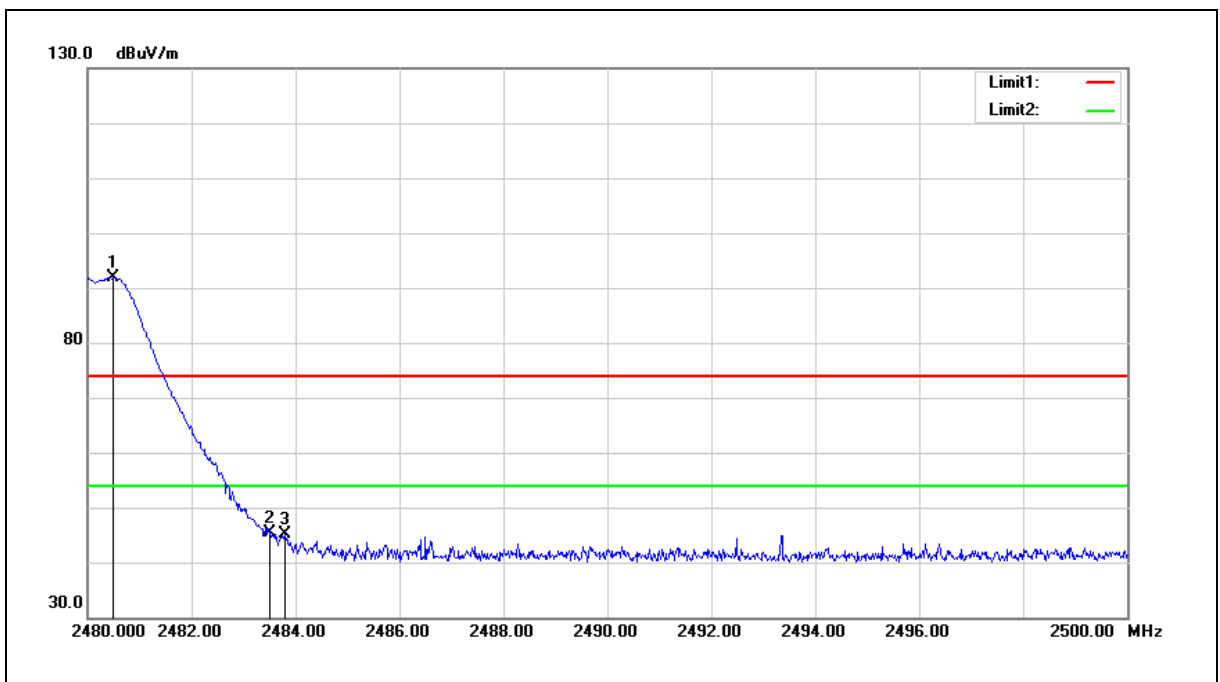
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.460	98.82	-2.94	95.88	--	--	peak
2	2483.500	51.85	-2.93	48.92	74.00	-25.08	peak
3	2483.920	50.23	-2.93	47.30	74.00	-26.70	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 6		
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.480	94.89	-2.94	91.95	--	--	peak
2	2483.500	48.35	-2.93	45.42	74.00	-28.58	peak
3	2483.800	48.00	-2.93	45.07	74.00	-28.93	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre-Amplifier gain (dB).

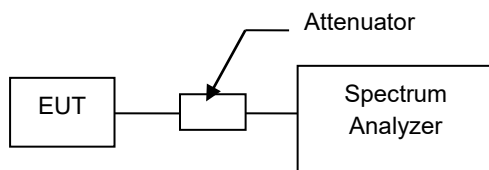
3. When the peak results are less than average limit, so not need to evaluate the average.

4.4 非必要頻帶之量測

合格標準：

發射限制： 使用頻帶範圍外之任意 100 千赫 (kHz)內，發射器所產生的射頻功率相較於使用頻帶範圍中包含最高所需功率之 100 千赫 (kHz)內的射頻功率，須衰減 20 分貝(dB)，以射頻傳導或輻射方式測量。

測試架構圖：



測試結果：

操作模式	: Mode 2: BR, GFSK Continuous TX Mode Mode 4: EDR, 8DPSK Continuous TX Mode Mode 5: LE, GFSK Continuous TX Mode Mode 6: 2LE, GFSK Continuous TX Mode
量測之結果掃圖如下頁所示	

附註 1: 於使用頻帶範圍之任意 100 千赫 (kHz)內，發射器所產生的射頻功率相較於使用頻帶範圍中包含最高所需功率之 100 千赫 (kHz)內的射頻功率，衰減 20 分貝(dB)以上，符合規定。

附註 2: 測試結果頻帶外之輻射雜訊皆小於主頻 TX 20 dB。

Out of Band Conducted Spurious Emission

Mode 2: BR, GFSK Continuous TX Mode

低頻道



中頻道



高頻道



Mode 4: EDR, 8DPSK Continuous TX Mode

低頻道



中頻道



高頻道



Mode 5: LE, GFSK Continuous TX Mode

低頻道



中頻道



高頻道



Mode 6: 2LE, GFSK Continuous TX Mode

低頻道



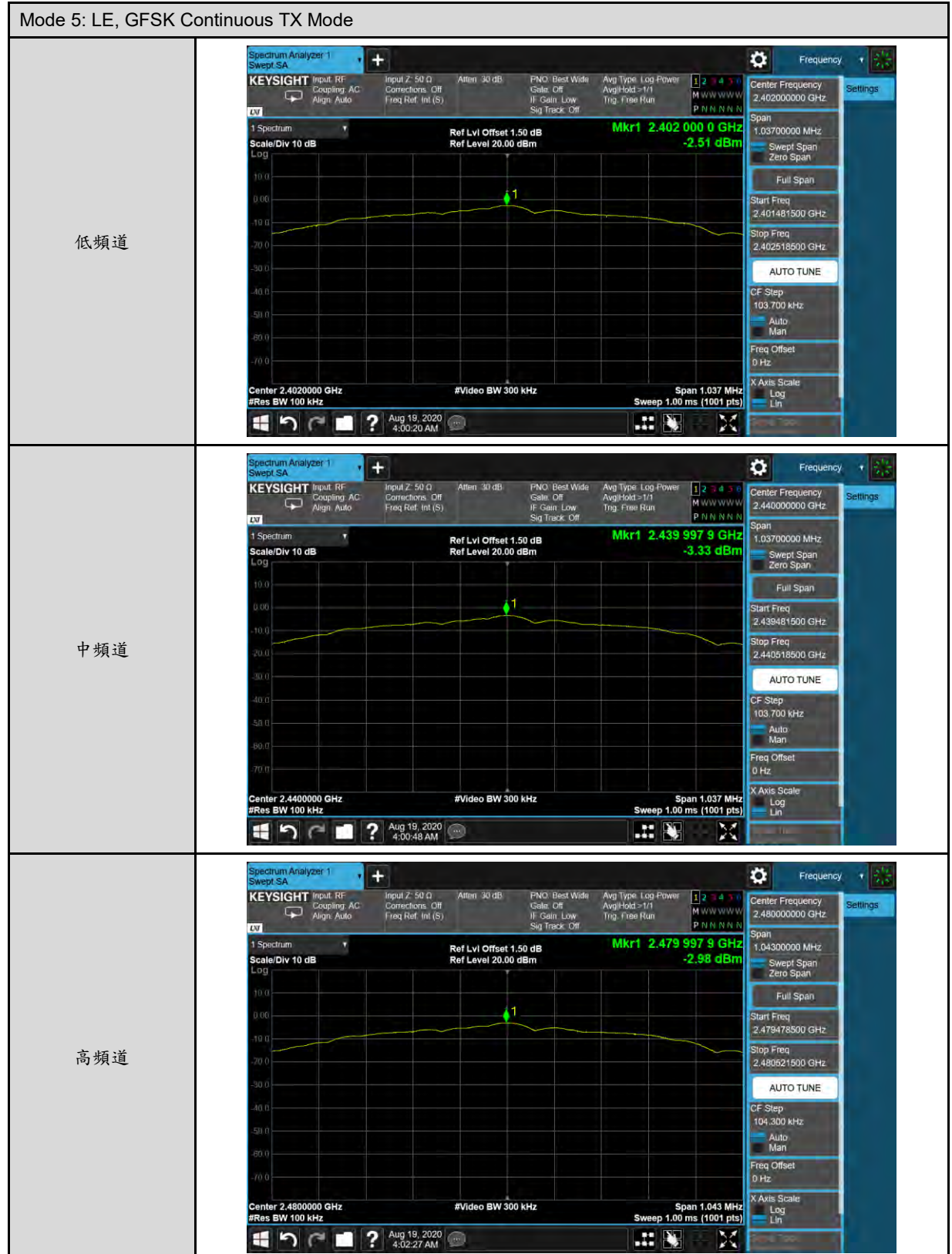
中頻道



高頻道



Reference level



Mode 6: 2LE, GFSK Continuous TX Mode

低頻道



中頻道



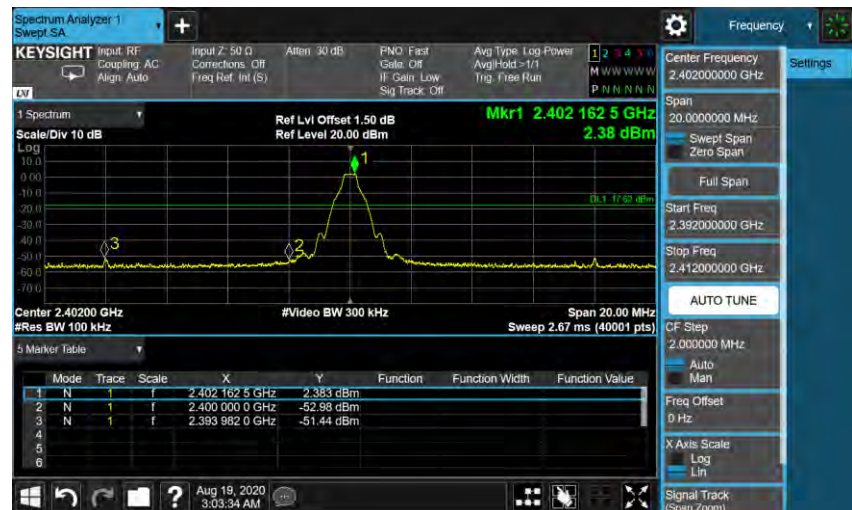
高頻道



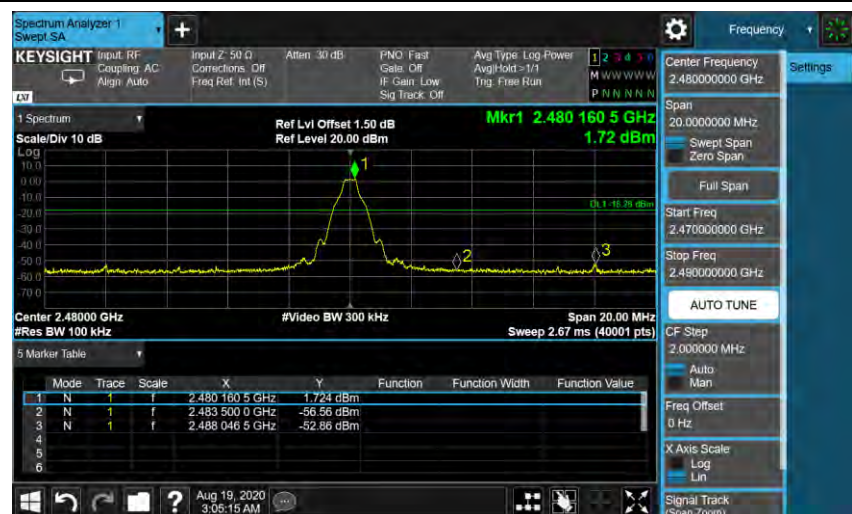
Conducted Band Edge

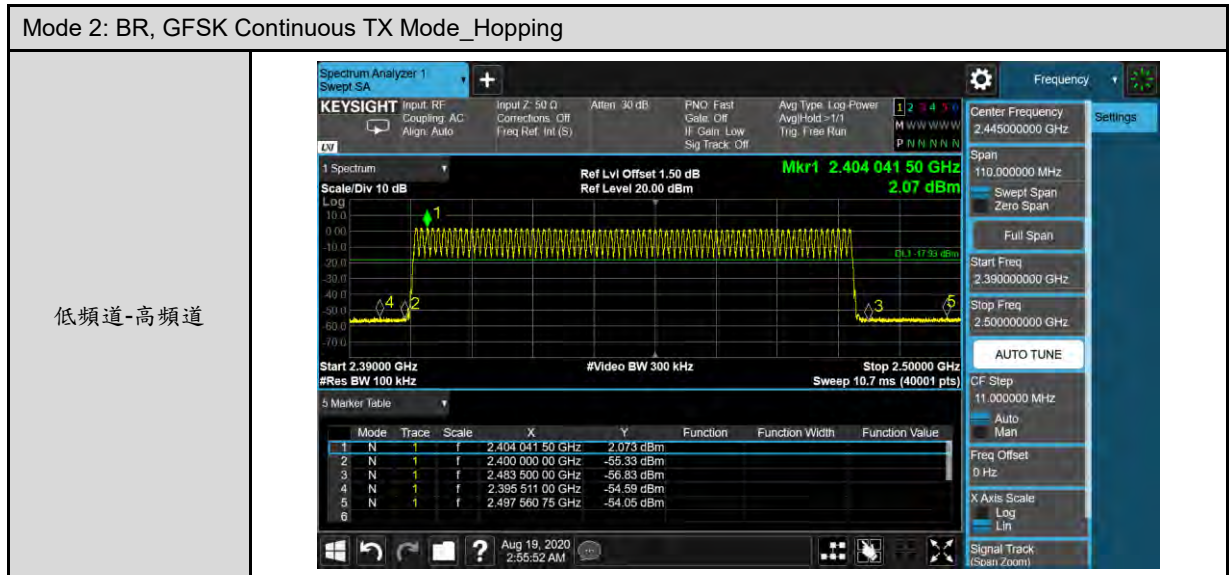
Mode 2: BR, GFSK Continuous TX Mode_Un-hopping

低頻道



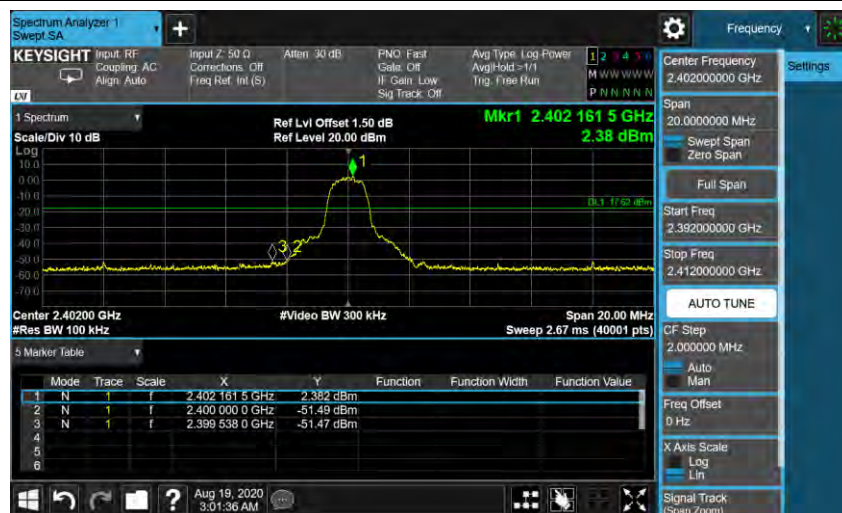
高頻道



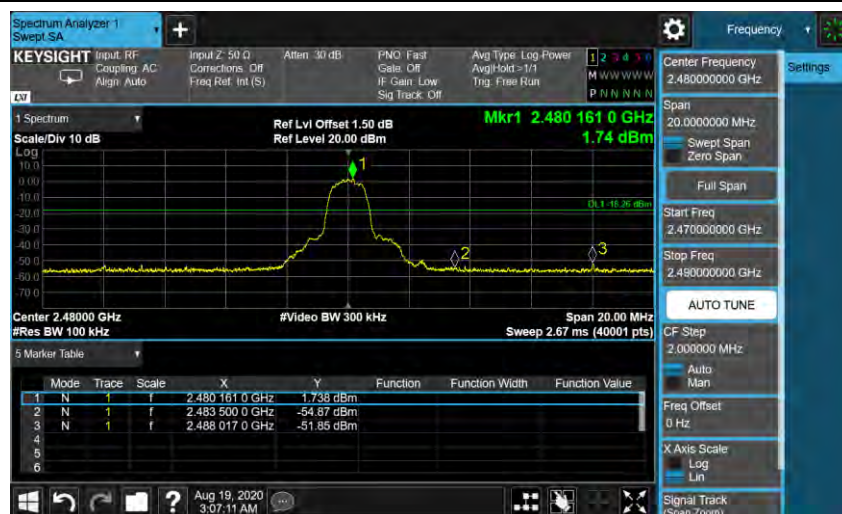


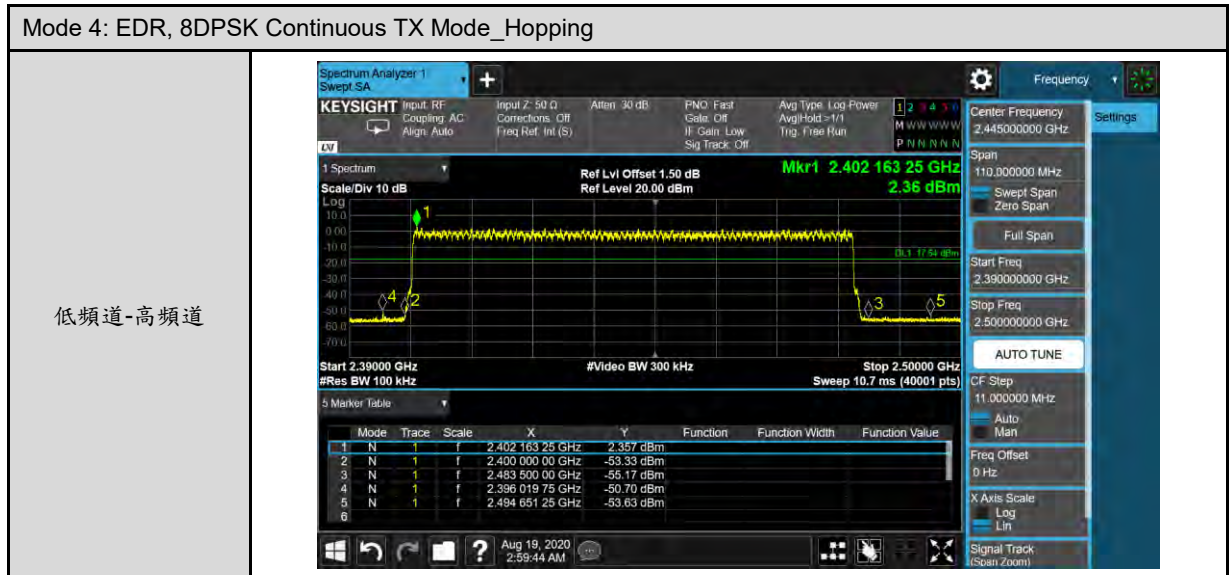
Mode 4: EDR, 8DPSK Continuous TX Mode_Un-hopping

低頻道



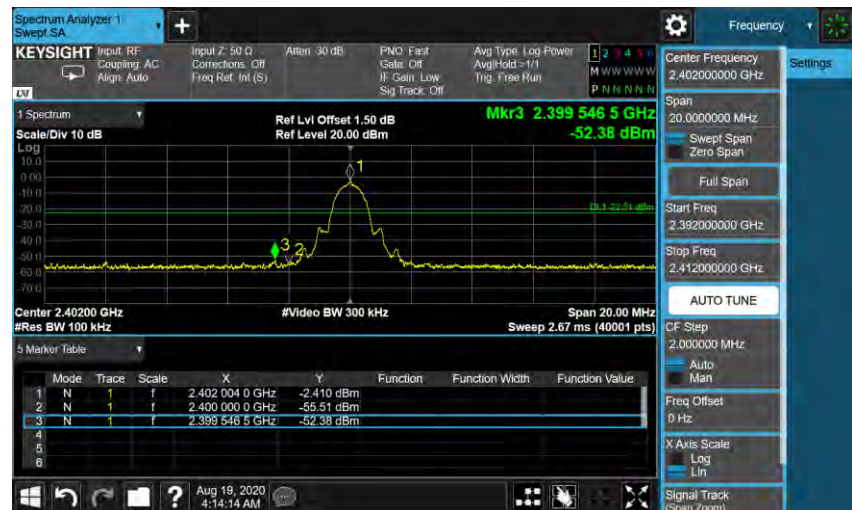
高頻道



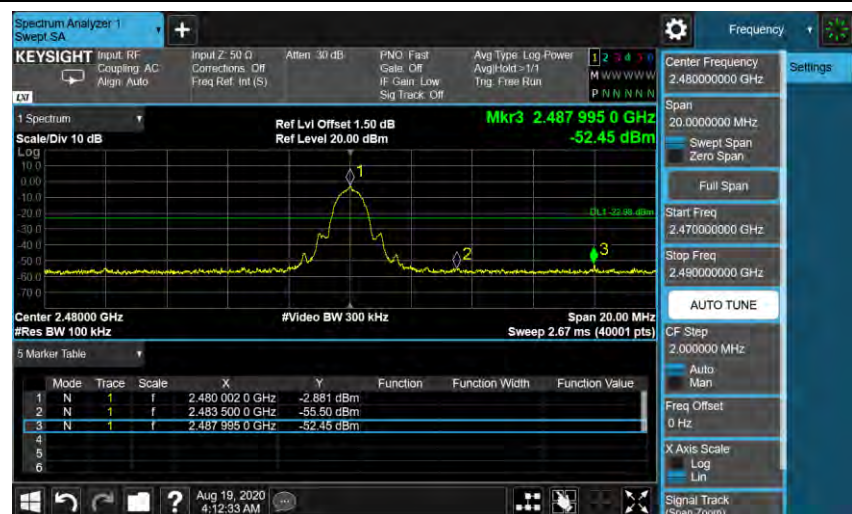


Mode 5: LE, GFSK Continuous TX Mode

低頻道

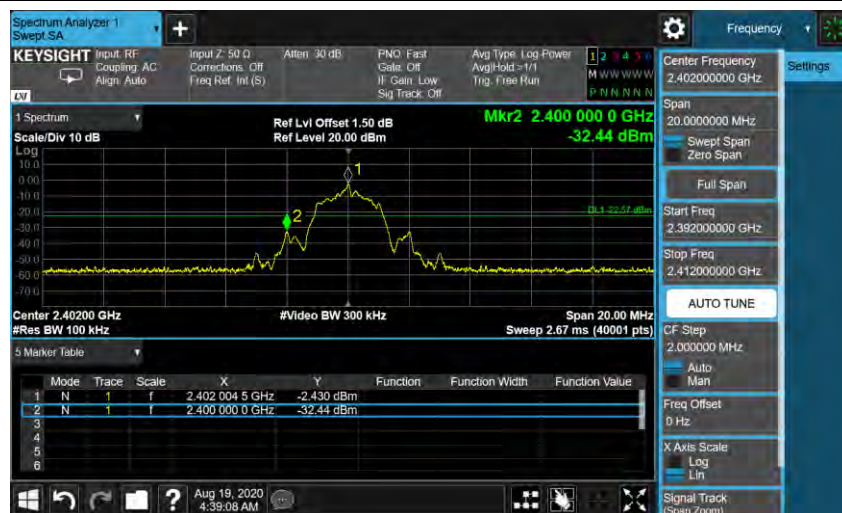


高頻道

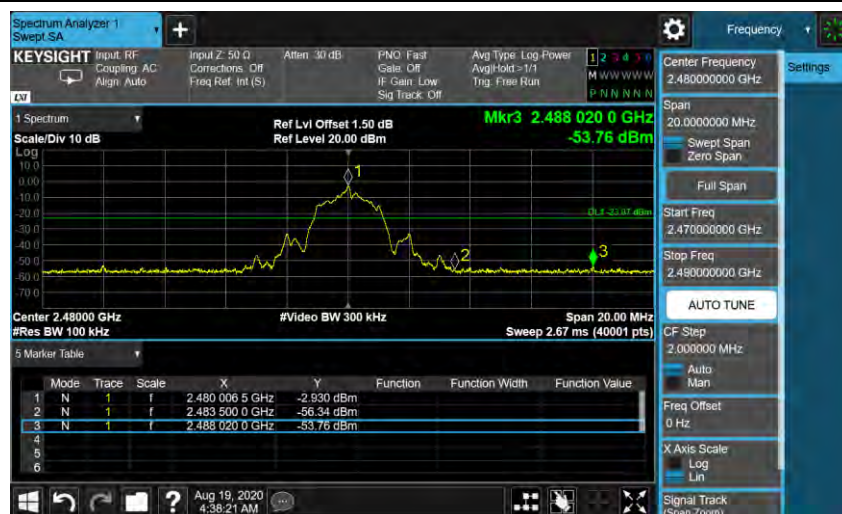


Mode 6: 2LE, GFSK Continuous TX Mode

低頻道



高頻道



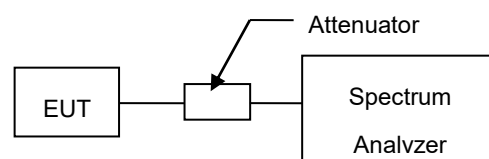
4.5 頻率範圍之要求

合格標準：

依據 NCC 低功率射頻電機技術規範(LP0002)之 3.10.1.1 節之要求，允許使用的頻率範圍為 2400 至 2483.5 MHz。

測試架構圖：

測試場地測試配置如圖所示。



測試結果：

操作模式	: Mode 2: BR, GFSK Continuous TX Mode Mode 4: EDR, 8DPSK Continuous TX Mode
------	--

量測之掃描圖如下頁所示





4.6 發射頻寬之要求

合格標準:

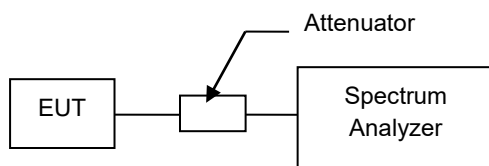
BR/EDR

對跳頻系統(Frequency Hopping System)而言,依據 NCC 低功率射頻電機技術規範 3.10.1.6(1)(A)節之要求,跳頻系統之載波頻率頻道間隔應至少 25 千赫(kHz)或跳頻頻道 20 dB 頻寬之三分之二,兩者取較寬者。系統之跳頻頻道應依虛擬亂數排列,在各頻率之跳頻頻道上跳躍。每一發射機必須均等的使用每一頻率。系統接收機應具有與發射機跳躍頻道頻寬相匹配之輸入頻寬,且應隨所發射的信號同步偏移接收頻率。

LE/2LE

依據 NCC 低功率射頻電機技術規範 3.10.1.6(2)(A)節之要求,對使用數位調變技術(Digital Modulation Techniques)系統而言,6 dB 頻寬至少應有 500 千赫(kHz)。

測試架構圖:



測試結果:

操作模式 : Mode 2: BR, GFSK Continuous TX Mode Mode 4: EDR, 8DPSK Continuous TX Mode				
操作模式	頻道	發射頻寬(20 dB)		
		量測值 (MHz)	2/3 量測值 (MHz)	限制值 (MHz)
Mode 2	低頻道	1.021	0.681	-----
	中頻道	0.968	0.645	-----
	高頻道	0.965	0.643	-----
Mode 4	低頻道	1.327	0.885	-----
	中頻道	1.325	0.883	-----
	高頻道	1.327	0.885	-----
註: 發射頻寬(20 dB) 之 2/3 量測值 = 量測值 x 2 / 3				
測試掃描圖請參考下頁。				

操作模式： Mode 5: LE, GFSK Continuous TX Mode Mode 6: 2LE, GFSK Continuous TX Mode			
操作模式	頻道	發射頻寬(6dB)	
		量測值 (kHz)	限制值 (kHz)
Mode 5	低頻道	690.800	≥ 500
	中頻道	690.900	≥ 500
	高頻道	694.700	≥ 500
Mode 6	低頻道	526.700	≥ 500
	中頻道	527.600	≥ 500
	高頻道	529.300	≥ 500
測試掃描圖請參考下頁。			

Mode 2: BR, GFSK Continuous TX Mode

低頻道

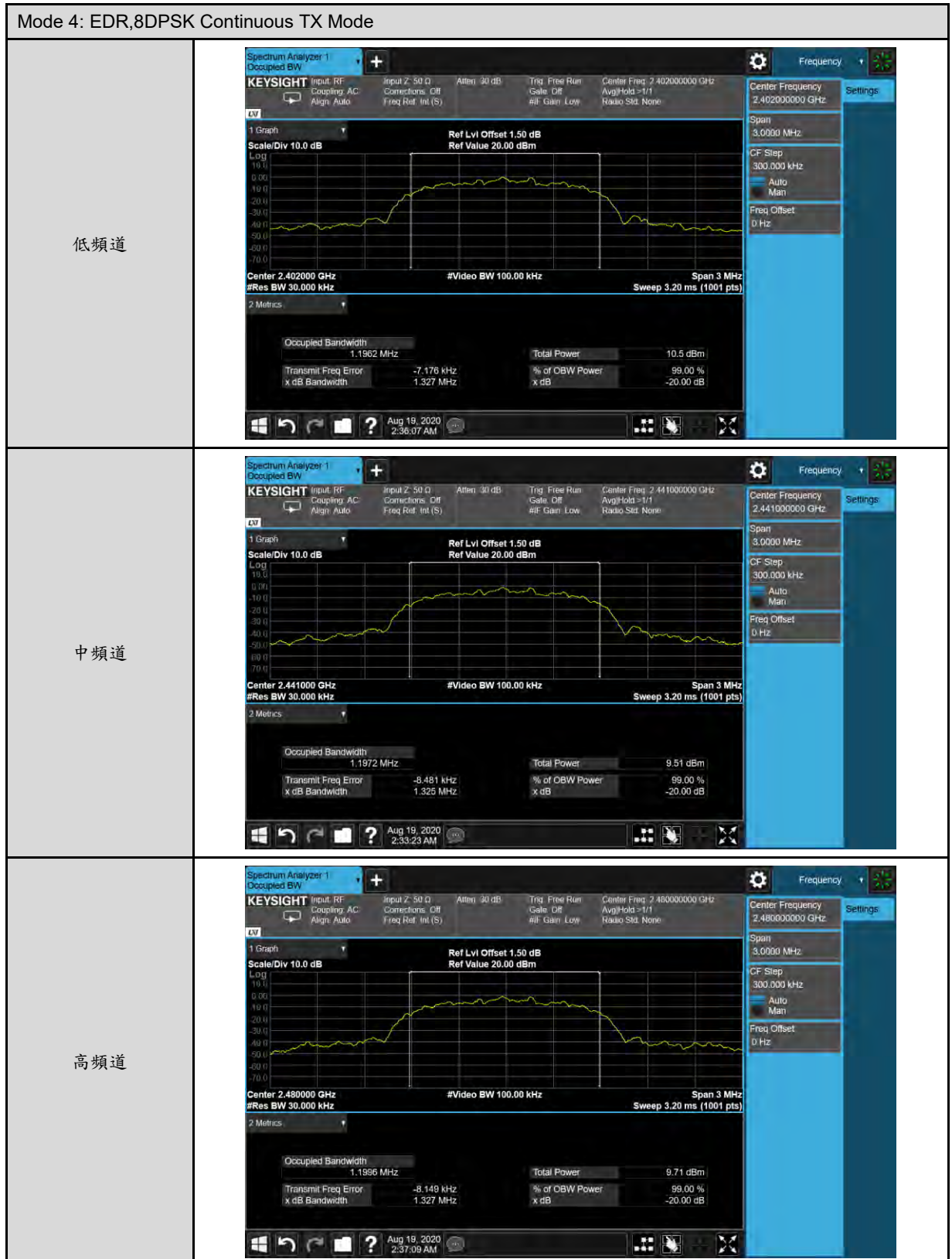


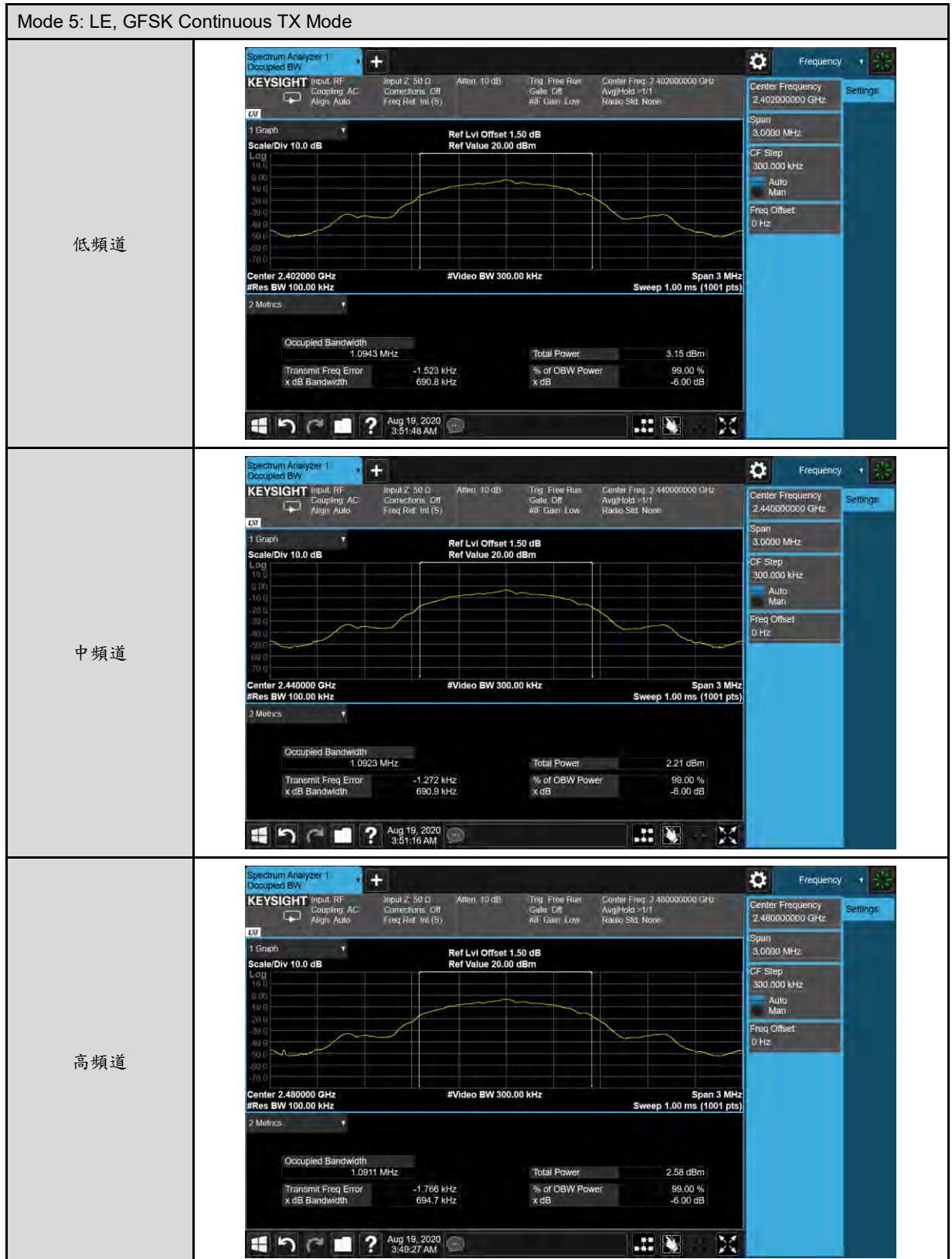
中頻道

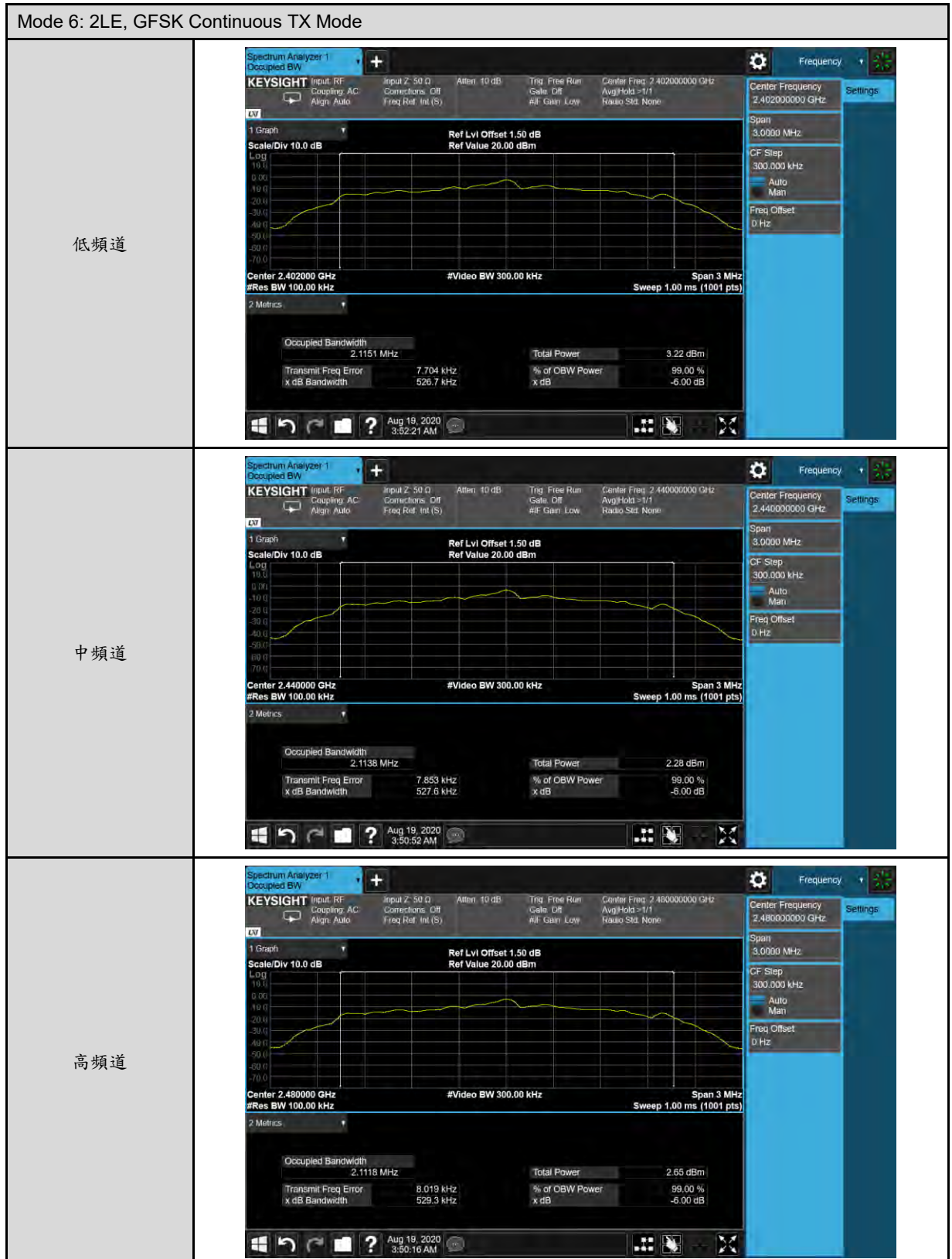


高頻道







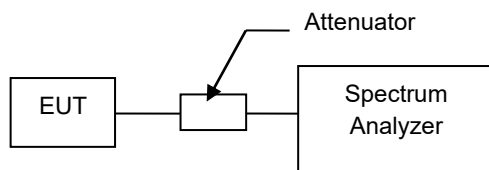


4.7 頻道數之要求

合格標準：

對跳頻系統(Frequency Hopping System)而言，依據 NCC 低功率射頻電機技術規範(LP0002)之 3.10.1.6(1)(A)(a)節之要求，至少使用 15 個無重疊之頻道(複合系統時，關閉數位調變作業狀態檢驗)。

測試架構圖：



測試結果：

操作模式	: Mode 2: BR, GFSK Continuous TX Mode Mode 4: EDR, 8DPSK Continuous TX Mode
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量測之掃描圖如下頁所示



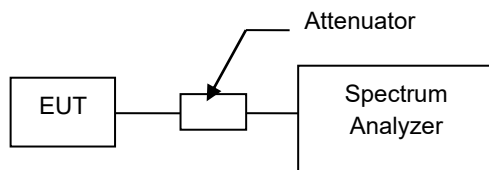


4.8 跳頻系統之載波頻率頻道間隔之量測

合格標準：

依據 NCC 低功率射頻電機技術規範(LP0002) 之 3.10.1.6(1)(A)節要求，應至少 25 kHz 或跳頻頻道之 20 dB 頻寬之三分之二，兩者取較寬者。

測試架構圖：

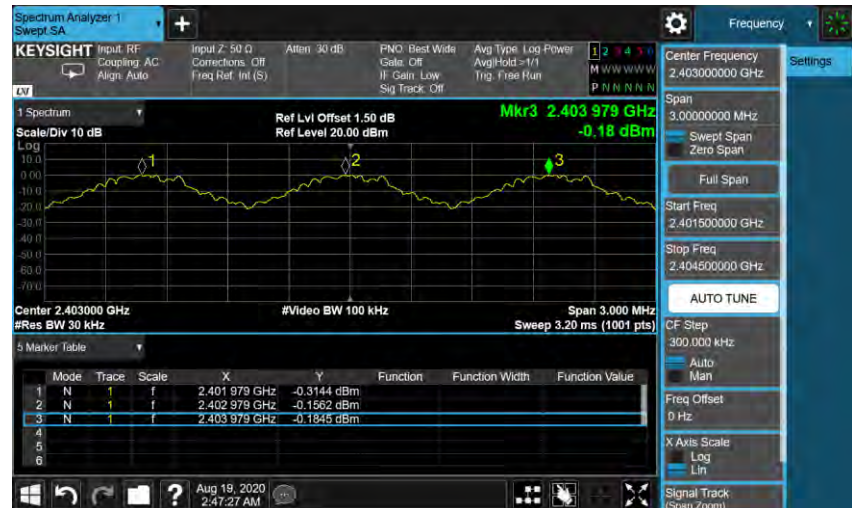


測試結果：

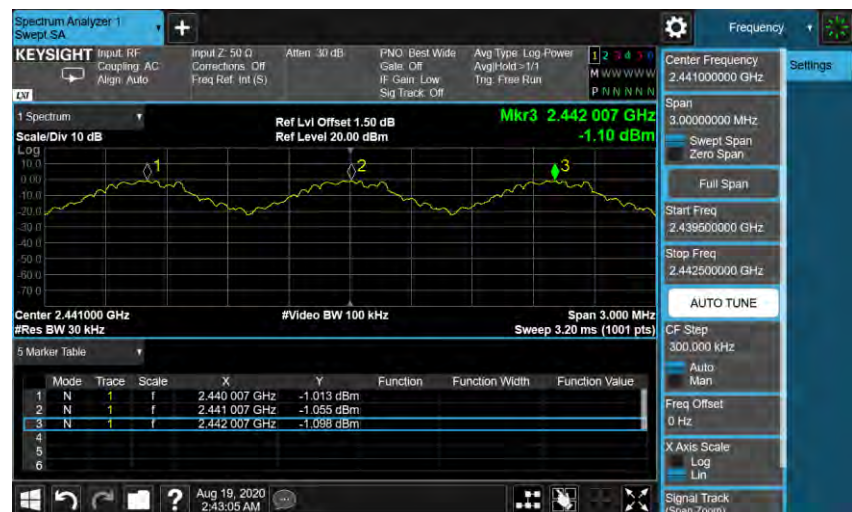
操作模式： Mode 2: BR, GFSK Continuous TX Mode Mode 4: EDR, 8DPSK Continuous TX Mode			
操作模式	頻道	鄰頻道載波間隔	
		量測值 (MHz)	限制值 (MHz)
Mode 2	低頻道	1.000	≥ 0.681
	中頻道	1.000	≥ 0.645
	高頻道	1.000	≥ 0.643
Mode 4	低頻道	1.000	≥ 0.885
	中頻道	1.000	≥ 0.883
	高頻道	1.000	≥ 0.885

Mode 2: BR, GFSK Continuous TX Mode

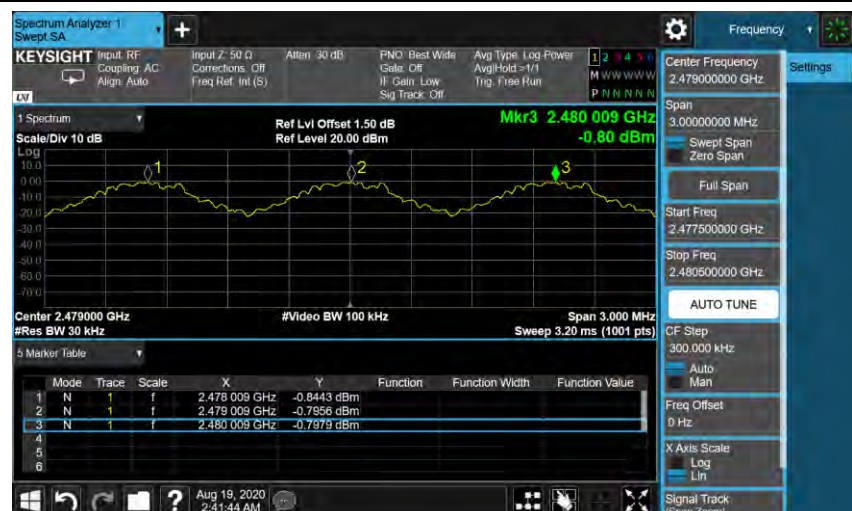
低頻道



中頻道

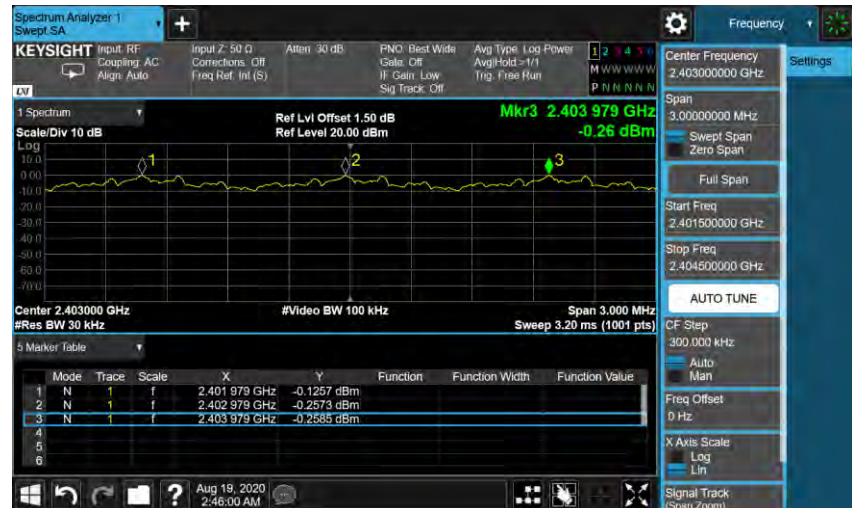


高頻道

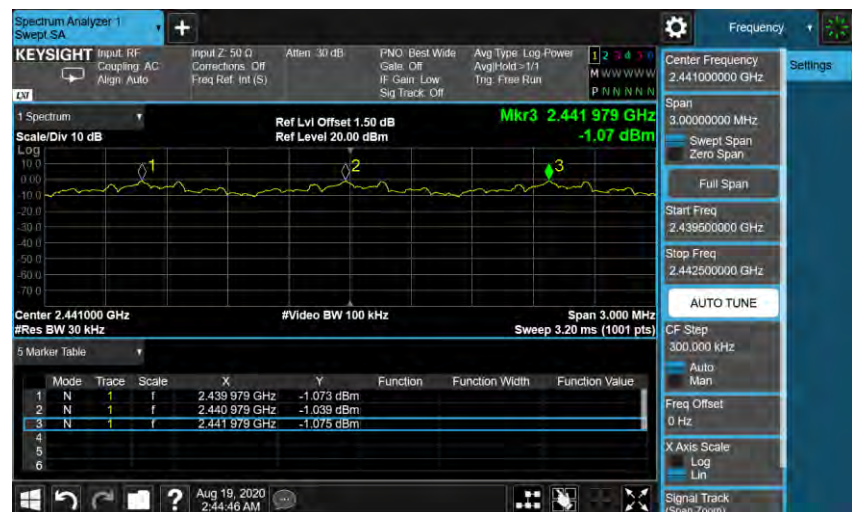


Mode 4: EDR, 8DPSK Continuous TX Mode

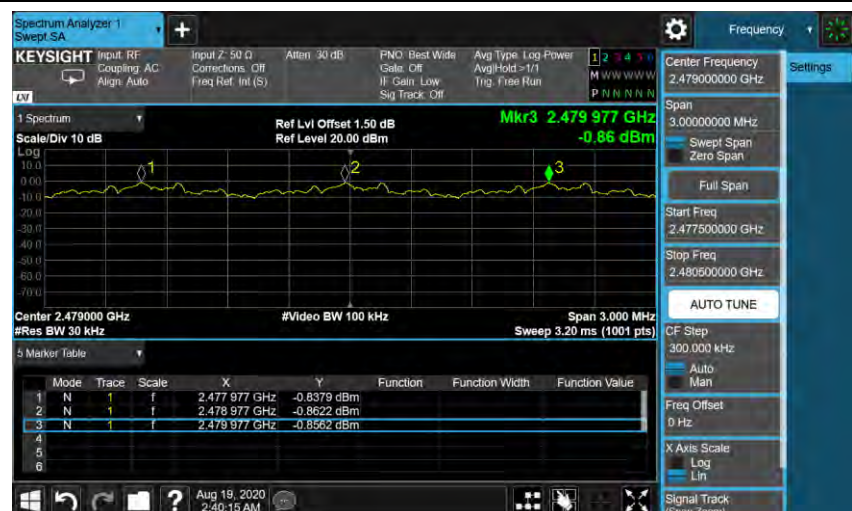
低頻道



中頻道



高頻道

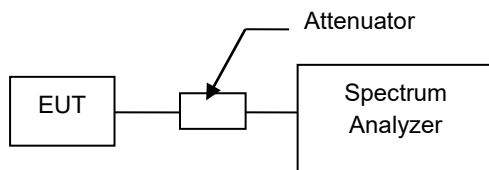


4.9 跳頻系統之任一頻率佔用之平均時間之量測

合格標準：

依據 NCC 低功率射頻電機技術規範(LP0002)之 3.10.1.6(1)(A)(a)節之要求，若使用 15 個無重疊之頻道，在 0.4 秒乘以跳頻頻道數之週期內，任一頻道佔用之平均時間不得超過 0.4 秒(複合系統時，關閉跳頻作業狀態檢驗)。

測試架構圖：



測試結果：

操作模式	: Mode 2: BR, GFSK Continuous TX Mode Mode 4: EDR, 8DPSK Continuous TX Mode
此項測試進行量測高中低頻道，取其最大值紀錄於此量測結果，量測之結果數據如下頁所示。	

Mode 2: BR, GFSK Continuous TX Mode	
DH1 模式	
需量測之週期(秒)	$79\text{CH} * 0.4 = 31.6$ (秒)
待測物每秒跳頻之總次數	1600(藍牙通訊協定標準)
頻道每秒佔用之次數	$800/79\text{CH} = 10.13$ (次/秒)
頻道每次佔用之時間(1)	0.410 ms (秒)
週期內頻道佔用之總次數(2)	$31.6 * 10.13 = 320.108$ (次)
週期內佔用的平均時間(1) * (2)	131.244 ms (秒)
LIMIT(msec)	≤ 400
DH3 模式	
需量測之週期(秒)	$79\text{CH} * 0.4 = 31.6$ (秒)
待測物每秒跳頻之總次數	1600(藍牙通訊協定標準)
頻道每秒佔用之次數	$400/79\text{CH} = 5.06$ (次/秒)
頻道每次佔用之時間(1)	1.680 ms (秒)
週期內頻道佔用之總次數(2)	$31.6 * 5.06 = 159.896$ (次)
週期內佔用的平均時間(1) * (2)	268.625 ms (秒)
LIMIT(msec)	≤ 400
DH5 模式	
需量測之週期(秒)	$79\text{CH} * 0.4 = 31.6$ (秒)
待測物每秒跳頻之總次數	1600(藍牙通訊協定標準)
頻道每秒佔用之次數	$266.7/79\text{CH} = 3.38$ (次/秒)
頻道每次佔用之時間(1)	2.920 ms (秒)
週期內頻道佔用之總次數(2)	$31.6 * 3.38 = 106.808$ (次)
週期內佔用的平均時間(1) * (2)	311.879 ms (秒)
LIMIT(msec)	≤ 400

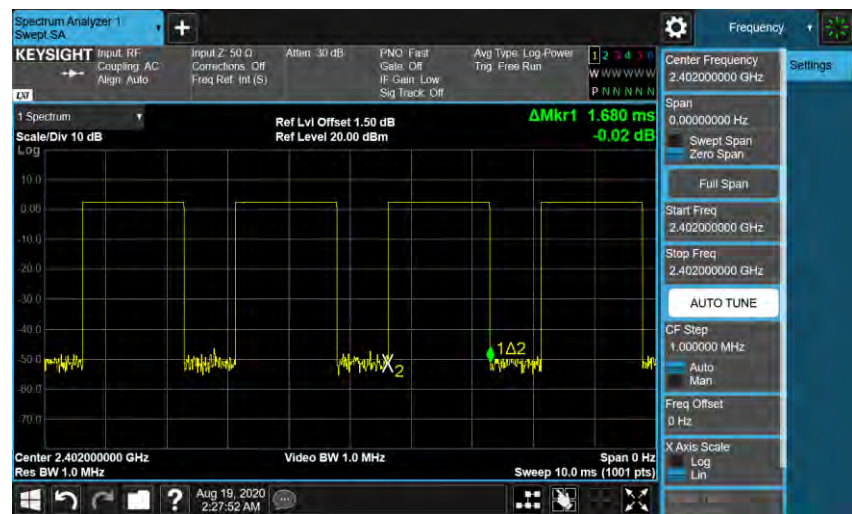
附註: RB=1 MHz ; VB=1 MHz ; SPAN=0 MHz ; Sweep Time=10 msec

Mode 2: BR, GFSK Continuous TX Mode

DH1



DH3



DH5

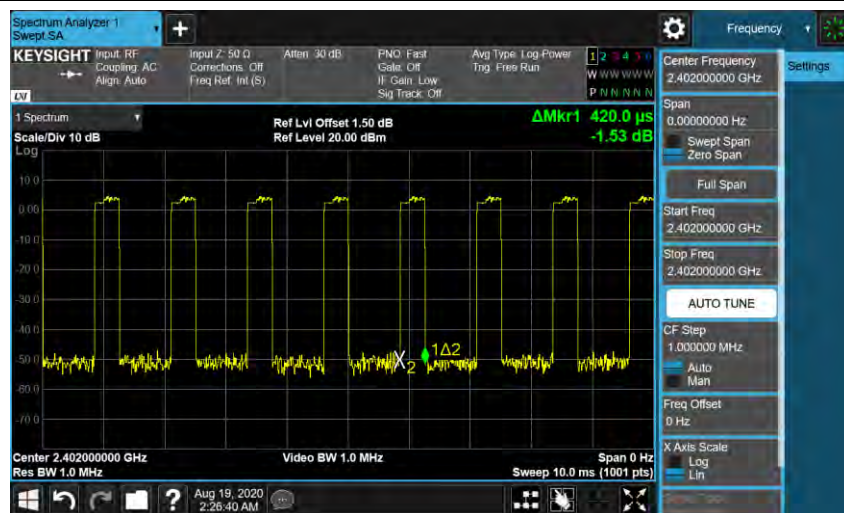


Mode 4: EDR, 8DPSK Continuous TX Mode	
3DH1 模式	
需量測之週期(秒)	$79\text{CH} * 0.4 = 31.6$ (秒)
待測物每秒跳頻之總次數	1600(藍牙通訊協定標準)
頻道每秒佔用之次數	$800/79\text{CH} = 10.13$ (次/秒)
頻道每次佔用之時間(1)	0.420 ms (秒)
週期內頻道佔用之總次數(2)	$31.6 * 10.13 = 320.108$ (次)
週期內佔用的平均時間(1) * (2)	134.445 ms (秒)
LIMIT(msec)	≤ 400
3DH3 模式	
需量測之週期(秒)	$79\text{CH} * 0.4 = 31.6$ (秒)
待測物每秒跳頻之總次數	1600(藍牙通訊協定標準)
頻道每秒佔用之次數	$400/79\text{CH} = 5.06$ (次/秒)
頻道每次佔用之時間(1)	1.680 ms (秒)
週期內頻道佔用之總次數(2)	$31.6 * 5.06 = 159.896$ (次)
週期內佔用的平均時間(1) * (2)	268.625 ms (秒)
LIMIT(msec)	≤ 400
3DH5 模式	
需量測之週期(秒)	$79\text{CH} * 0.4 = 31.6$ (秒)
待測物每秒跳頻之總次數	1600(藍牙通訊協定標準)
頻道每秒佔用之次數	$266.7/79\text{CH} = 3.38$ (次/秒)
頻道每次佔用之時間(1)	2.920 ms (秒)
週期內頻道佔用之總次數(2)	$31.6 * 3.38 = 106.808$ (次)
週期內佔用的平均時間(1) * (2)	311.879 ms (秒)
LIMIT(msec)	≤ 400

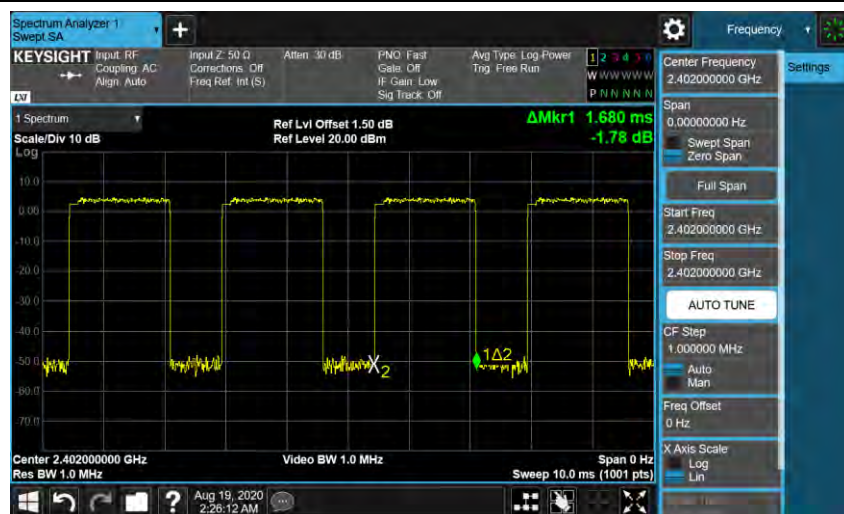
附註: RB=1 MHz ; VB=1 MHz ; SPAN=0 MHz ; Sweep Time=10 msec

Mode 4: EDR, 8DPSK Continuous TX Mode

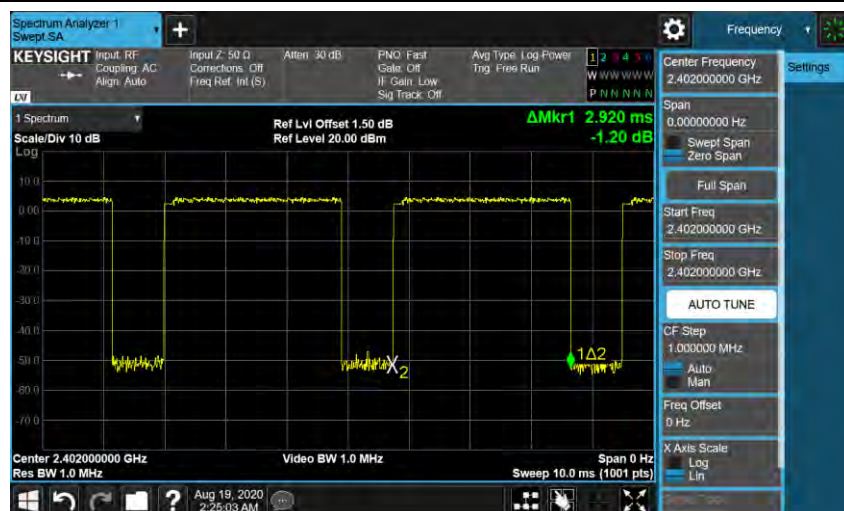
3DH1



3DH3



3DH5



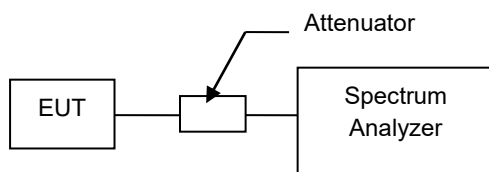
4.10 功率密度之要求

合格標準：

依據NCC低功率射頻電機技術規範(LP0002)之3.10.1.6(2)(B)節之要求，數位調變技術(Digital Modulation Techniques)系統之功率密度，再使用頻率範圍之任意 3 kHz 頻寬內，由發射機傳導至天線之峰值發射電功率密度在任意期間內，皆不得大於 8 dBm(複合系統時，關閉跳頻作業狀態檢驗)。

測試架構圖：

測試場地測試配置如圖所示。



測試結果：

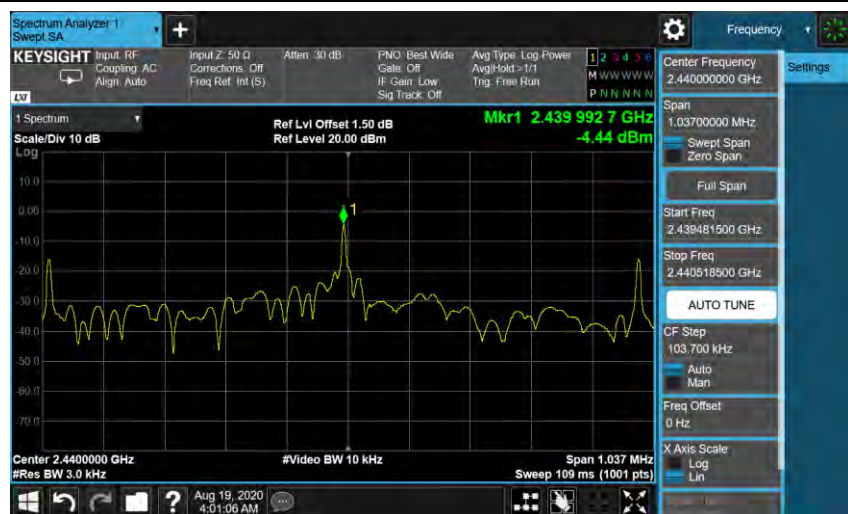
操作模式： Mode 5: LE, GFSK Continuous TX Mode Mode 6: 2LE, GFSK Continuous TX Mode			
操作模式	頻道	量測值 (dBm/3 kHz)	限制值 (dBm/3 kHz)
Mode 5	低頻道	-3.580	≤ 8
	中頻道	-4.440	≤ 8
	高頻道	-4.060	≤ 8
Mode 6	低頻道	-7.030	≤ 8
	中頻道	-7.860	≤ 8
	高頻道	-7.480	≤ 8

Mode 5: LE, GFSK Continuous TX Mode

低頻道



中頻道



高頻道



Mode 6: 2LE, GFSK Continuous TX Mode

低頻道



中頻道



高頻道



4.11 天線規格之要求

合格標準:

依據 NCC 低功率射頻電機技術規範(LP0002)之 3.10.1.3(3)節之要求，除 3.10.1.3(1)及 3.10.1.3(2)外，使用超過 6 dBi 方向增益之發射天線時，應依超過 6 dBi 天線方向增益的 dBi 總量，等量減少最大傳導輸出功率限制值。

依據 NCC 低功率射頻電機技術規範(LP0002)之 3.10.1.4 節之要求，天線之規格不受第 2.2 節規定之限制。

判定結果:符合。

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